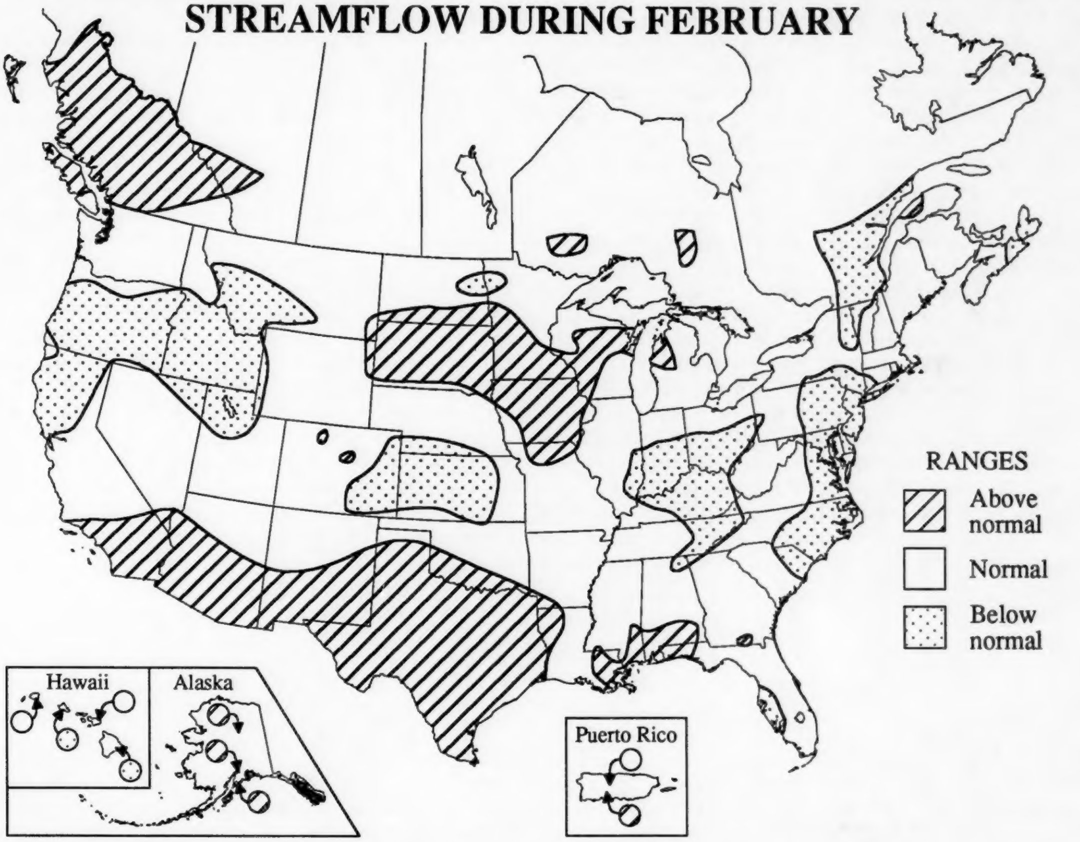
National Water Conditions

UNITED STATES
Department of the Interior
Geological Survey

CANADA
Department of the Environment
Water Resources Branch

FEBRUARY 1992

STREAMFLOW DURING FEBRUARY



Drought is still affecting several large areas. In the East, for example, the contents of the New York City Reservoir System decreased and remained well below average. In California, total streamflow, reservoir contents, and ground-water levels remained well-below average.

February streamflow was in the normal to above-normal range at 71 percent of the 190 reporting index stations in the United States, southern Canada, and Puerto Rico during the month, compared with 80 percent of stations in those ranges during January. Below-normal range streamflow occurred in 18 percent of the area of the conterminous United States and southern Canada during February, compared with 16 percent during January. Total flow for stations in the conterminous United States and southern Canada was 12 percent below median, after a 22 percent increase from last month.

Two new February minimums (both in Kansas) and three new maximums (two in Texas and one in Puerto Rico) occurred at streamflow index stations, compared with three new maximums during January.

The combined flow of the 3 largest rivers in the lower 48 States—Mississippi, St. Lawrence, and Columbia—averaged 25 percent below median and in the below-normal range, after a 19 percent decrease in flow from January to February. Flow of the St. Lawrence River and the Columbia River was in the normal range and flow of the Mississippi River was in the below-normal range.

Month-end index reservoir contents were in the below-average range at 29 of 100 reporting sites, compared with 28 of 100 at the end of January. Contents were in the above-average range at 42 reservoirs, the same as last month. Three reservoirs had less than 10 percent of normal maximum contents.

Mean February elevations at four master gages on the Great Lakes (provisional National Ocean Service data) were in the normal range and above median on Lake Superior, Lake Huron, and Lake Erie, and in the below-normal range on Lake Ontario.

Utah's Great Salt Lake rose 0.40 foot , ending the month at 4,202.20 feet above National Geodetic Vertical Datum. Lake level was 0.30 foot lower than at the end of February 1991.

Streamflow decreased from that for January in the Hudson Bay, St. Lawrence River, and Atlantic Slope basins, and increased in the other 9 basins. Streamflow was above median in 5 basins, and below median in the other 7 basins.

Ground-water levels generally were above last month's levels in the Western Mountain Ranges, Alluvial Basins, High Plains, Glaciated Central, and Piedmont and Blue Ridge regions, but generally above long-term averages only in the Western Mountain Ranges region.

New extremes occurred at 32 ground-water index stations during February—27 lows (including 4 all-time) and 5 highs (including 3 all-time)—compared with 36 new extremes last month.

SURFACE-WATER CONDITIONS DURING FEBRUARY 1992

Drought is still affecting several large areas. In the East, for example, the contents of the New York City Reservoir System decreased, falling from 60 percent of capacity at the end of January to 59 percent of capacity at the end of February (only 62 percent of the long-term average for the end of January), almost 40 percent lower than contents at the end of February 1991. In California, total streamflow, reservoir contents, and ground-water levels remained well-below average. Total flow for February at the six index stations in California was 32 percent below median despite a 160 percent increase from that for January. The persistence and severity of the drought in California is shown by the following: (1) since the end of August 1990 (the most recent month of above-median streamflow), the cumulative streamflow deficit at the six index stations has gone from about 68 percent of a median year of runoff to about 133 percent of a median year of runoff—about 65 percent of a median year of runoff was "lost" in the last 18 months; (2) the seasonal lows in combined storage for 6 large index reservoirs have generally declined steadily since 1986, bottoming out at 69, 53, 43, 45, 33, and 31 percent of capacity. The current month's storage in these 6 large reservoirs rose by about 8 percent of total capacity from that for January and is now at 40 percent of normal maximum. More data on California hydrologic conditions are given on pages 6-7.

February streamflow decreased from that for January at 92 index stations, remained unchanged at 7 index stations, and increased at 91 index stations, resulting in normal to above-normal range streamflow at 71 percent of the 190 reporting index stations in the United States, southern Canada, and Puerto Rico during the month, compared with 80 percent of stations in those ranges during January, and 79 percent of stations in those ranges during February 1991. Below-normal range streamflow occurred in 18 percent of the area of the conterminous United States and southern Canada during February, compared with 16 percent during January, and 22 percent (revised) during February 1991. Total flow of 648,100 cubic feet per second (ft^3/s) during February for the 172 reporting index stations in the conterminous United States and southern Canada was 12 percent below median, after a 22 percent increase from last month, and 25 percent less than flow during February 1991. (Data for the St. Johns River near Christmas, Florida, and the Qu'Appelle River near Lumsden, Saskatchewan, were not available.)

Two new minimums (both in Kansas) and three new maximums (two in Texas and one in Puerto Rico) occurred during February (see table on page 4), compared with three new maximums during January. Hydrographs for the 5 stations at which new extremes occurred, and also for 2 other stations — Great Egg Harbor River at Folsom, New Jersey, where the February monthly mean was the second lowest of record, and Des Moines River at Fort Dodge, Iowa, where the February monthly mean was the second highest of record — are on page 5.

The combined flow of the 3 largest rivers in the lower 48 States—Mississippi, St. Lawrence, and Columbia—averaged 774,700 ft^3/s, 25 percent below median and in the below-normal range, after a 19 percent decrease in flow from January to February. Flow of the St. Lawrence River was in the normal range for the ninth consecutive month. Flow of the Mississippi River was in the below-normal range after an above-normal range December and a normal January. Flow of the Columbia River was in the normal range after five consecutive months in the below-normal. Hydrographs for both the combined and individual flows of the "Big 3" are on page 8. Dissolved solids and water temperatures at four large river stations are also given on page 8. Flow data for the "Big 3" and 42 other large rivers are given in the Flow of Large Rivers table on page 9.

(Continued on page 4)

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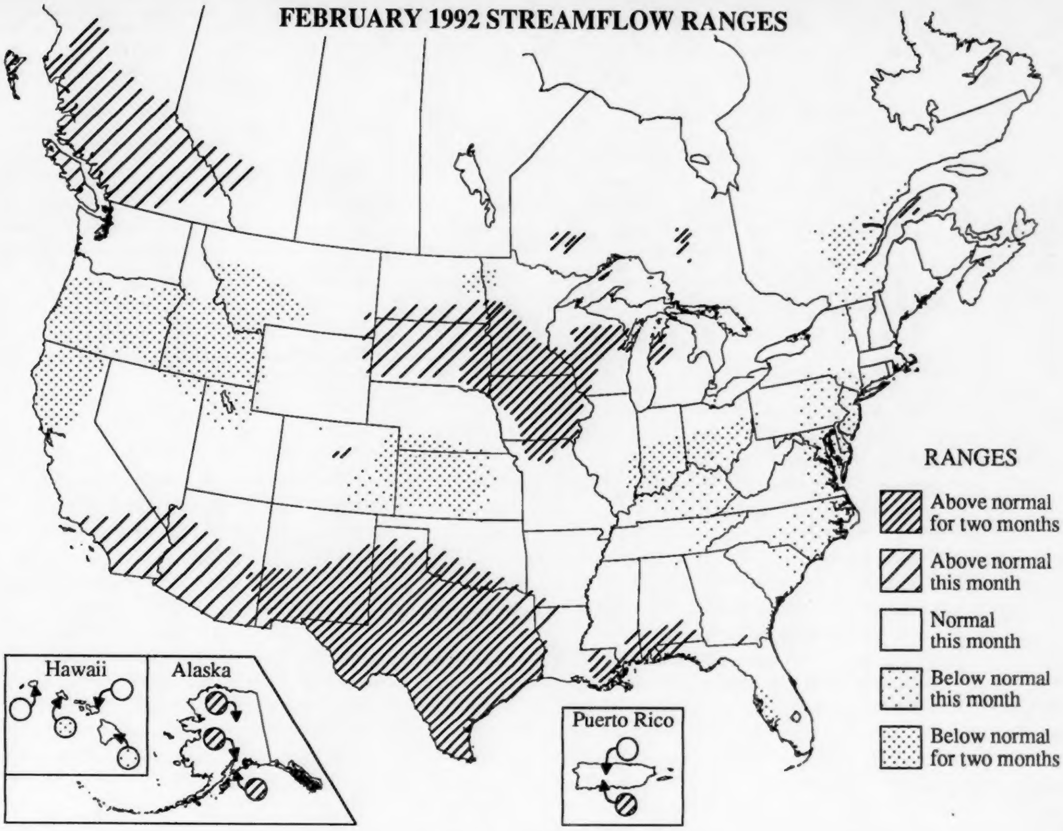
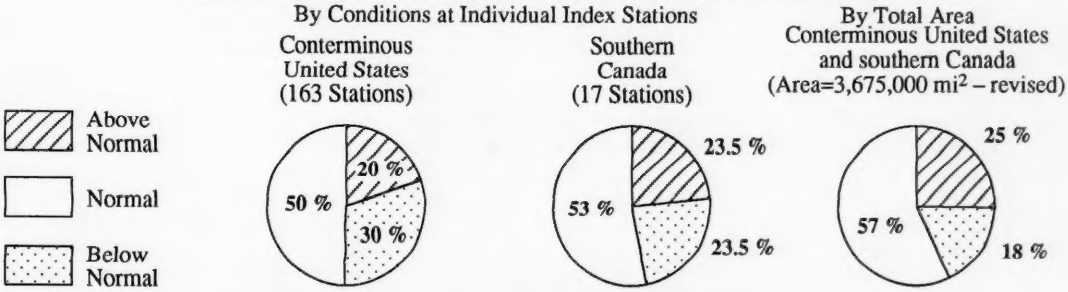
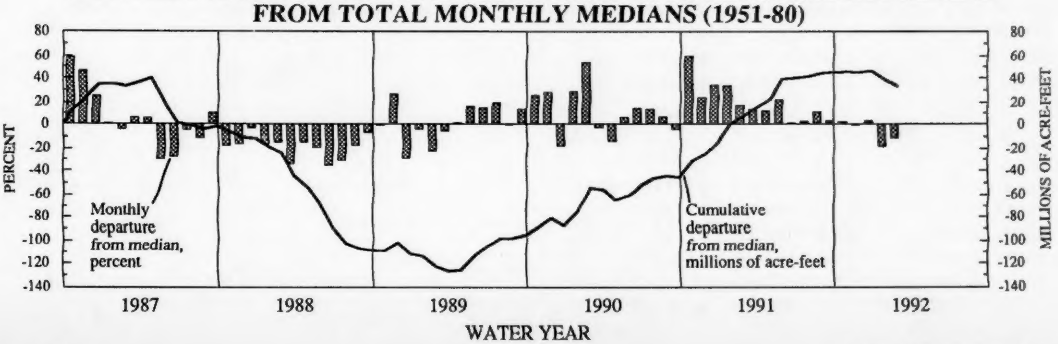
FEBRUARY 1992 STREAMFLOW RANGES



SUMMARY OF FEBRUARY 1992 STREAMFLOW RANGES



MONTHLY AND CUMULATIVE DEPARTURE OF TOTAL MONTHLY MEANS FROM TOTAL MONTHLY MEDIANS (1951-80)



NEW EXTREMES DURING FEBRUARY 1992 AT STREAMFLOW INDEX STATION

Station number	Stream and place of determination	Drainage area (square miles)	Years of record	Previous February extremes (period of record): Monthly mean in cfs (year)	Previous February extremes (period of record): Daily mean in cfs (year)	February 1992: Monthly mean in cfs	February 1992: Percent of median	February 1992: Daily mean in cfs	February 1992: Day
			LOW FLOWS						
06867000	Saline River near Russell, Kansas	1,502	40	5.50 (1991)	2.00 (1979)	2.17	7	1.08	9
06884400	Little Blue River near Barnes, Kansas	3,324	33	150 (1981)	80.0 (1981)	127	29	115	9
			HIGH FLOWS						
08095000	North Bosque River near Clifton, Texas	968	68	1,493 (1941)	14,200 (1948)	3,381	10,767	15,400	4
08167500	Guadalupe River near Spring Branch, Texas	1,315	69	1,869 (1975)	7,340 (1941)	4,048	2,663	24,000	4
50112500	Rio Inabon at Real Abajo, Puerto Rico	9	25	7.91 (1969)	26.0 (1968)	10.6	216	33.0	6

(Continued from page 2)

Month-end index reservoir contents were in the below-average range (below the month-end average for the period of record by more than 5 percent of normal maximum contents) at 29 of 100 reporting sites, compared with 28 of 100 at the end of January, and 35 of 100 at the end of February 1991, including most reservoirs in Nova Scotia, Maryland, Nebraska, North Dakota, Montana, Idaho, Utah, Nevada, California and the Colorado River Storage Project. Contents were in the above-average range at 42 reservoirs (compared with 42 last month, and 48 a year ago), including most reservoirs in Maine, New Hampshire, Vermont, Massachusetts, Georgia, Alabama, the Tennessee Valley, Wisconsin, Minnesota, Oklahoma, Texas, Arizona, and New Mexico. Reservoirs with contents in the below-average range and significantly lower than last year (with normal maximum contents of at least 1,000,000 acre-feet) are: the New York City Reservoir System, New York; Hungry Horse, Montana; Boise River, Idaho; and Clair Engle Lake, California. Three reservoirs had less than 10 percent of normal maximum contents (February average in parentheses): Keyhole, Wyoming, 1 percent (41); Lake Tahoe, California-Nevada, 0 percent (51); and Rye Patch, Nevada, 1 percent (52). Graphs of contents for seven reservoirs are shown on page 10 with contents for the 100 reporting reservoirs given on page 11. Maps on page 13 show reservoir storage conditions for February 1991 and February 1990 on the streamflow maps for those months.

Mean February elevations at four master gages on the Great Lakes (provisional National Ocean Service data) were in the normal range and above median on Lake Superior and Lake Erie, in the normal range and below median on Lake Huron, and in the below-normal range on Lake Ontario. Levels fell from those for January on Lake Superior, Lake Huron, and Lake Ontario, and rose from those for January on Lake Erie. February levels ranged from 0.23 foot lower (Lake Superior) to 0.10 foot higher (Lake Erie) than those for January. Monthly means have now been in the normal range for 5 months on Lake Superior, 21 months on Lake Huron, and 11 months on Lake Erie. Monthly means have been in the below-normal range on Lake Ontario for the last six months. February 1992 levels ranged from 1.99 foot lower (Lake Ontario) to 0.43 foot higher (Lake Superior) than those for February 1991. Stage hydrographs for the master gages on Lake Superior, Lake Huron, Lake Erie, and Lake Ontario are on page 12.

Utah's Great Salt Lake (graph on page 12) rose 0.10 foot February 1-15, and 0.30 foot February 16-29, ending the month at 4,202.20 feet above National Geodetic Vertical Datum. Lake level was 0.30 foot lower than at the end of February 1991, and 9.65 feet lower than the maximum of record which occurred in June 1986 and March-April 1987. *(Editor's note—Lake level at the end of January 1992 was 4,201.80 feet, not 4,201.90 feet as reported: the change was reported too late to be incorporated in the January NWC.)*

Maps on page 13 show streamflow conditions for February 1992 and February 1991. February 1992 has about 67 percent more area in the above-normal range, about 19 percent less area in the below-normal range, and about 9 percent less area in the normal range than February 1991. Below-normal range streamflow occurred during both months in parts of Hawaii, Oregon, California, Nevada, Utah, Idaho, Montana, Wyoming, Colorado, Kansas, Nebraska, North Dakota, Minnesota, Quebec, New York, New Jersey, Delaware, Maryland, Virginia, and North Carolina. Above-normal range streamflow occurred during both months in parts of Alaska, British Columbia, Michigan, New Mexico, Texas, Oklahoma, Louisiana, Mississippi, Alabama, Florida, and Puerto Rico. Both maps also show reservoir storage at all reporting index reservoir stations for comparison with streamflow.

Graphs for 12 hydrologic areas show monthly percent departure of streamflow from median for the 1987-92 water years (page 14) and also compare monthly streamflow for the 1991 and 1992 water years with median monthly streamflow for 1951-80 (page 15). Streamflow decreased from that for January in the Hudson Bay, St. Lawrence River, and Atlantic Slope basins, and increased in the other 9 basins. Streamflow was above median in the Florida and Gulf of Mexico, Upper Mississippi River, Missouri River, Southern Great Plains and Rio Grande, and also the Colorado River basin, and below median in the other 7 basins.

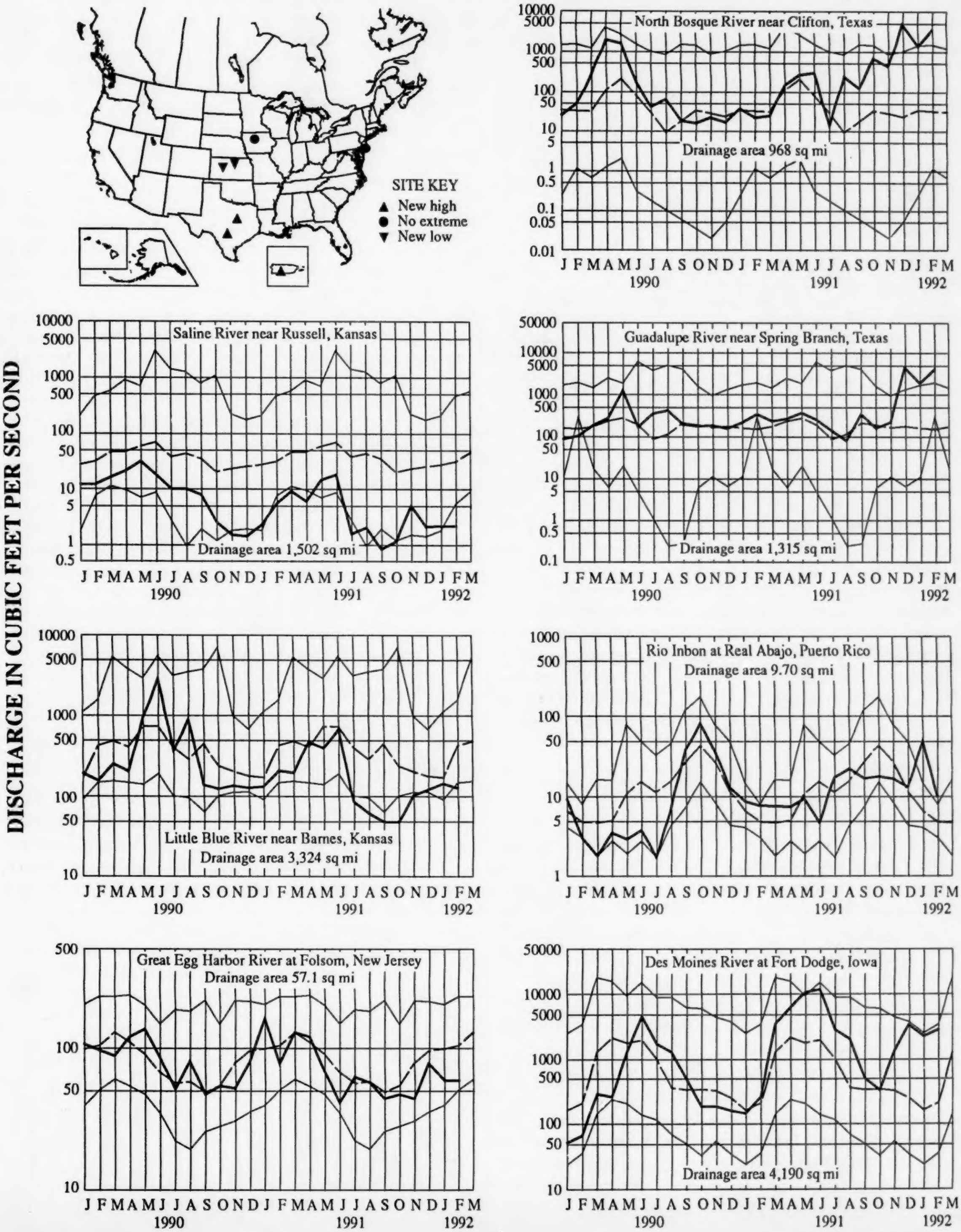
A further revision of the total area of the conterminous United States and southern Canada for which flow ranges are computed has been made. The revised total area (as shown on page 3) has been changed to 3,675,000 mi^2 from 3,774,000 mi^2. The revision affects the percent of area in each flow range published since the October 1991 issue. The table below gives the corrected percent of area in each flow range.

PERCENT OF AREA IN EACH STREAMFLOW RANGE

Month	1991 Water Year: Above	1991 Water Year: Below	1991 Water Year: Normal	1992 Water Year: Above	1992 Water Year: Below	1992 Water Year: Normal
October	22.0	22.9	55.2	9.2	23.6	67.2
November	11.9	23.6	64.5	14.8	12.7	72.5
December	23.7	28.0	48.3	24.3	17.3	58.4
January	24.0	23.7	52.3	19.0	16.0	65.0
February	15.6	21.5	62.9	25.4	17.7	56.9
September	14.3	15.9	69.9			

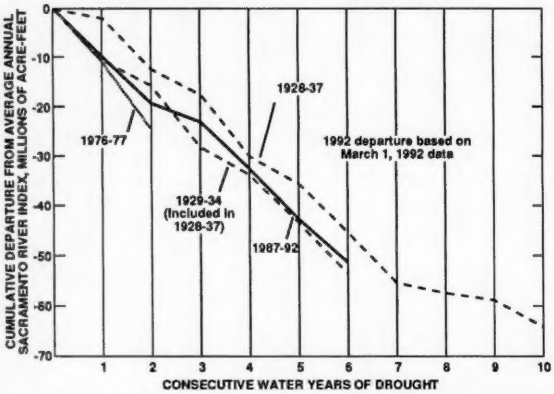
MONTHLY MEAN DISCHARGE OF SELECTED STREAMS

Area between light-weight solid lines indicates range between highest and lowest record for the month. Dashed line indicates median of monthly values for reference period, 1951-80. Heavy line indicates mean for current period.



CALIFORNIA HYDROLOGIC CONDITIONS

THE MOST SEVERE DROUGHTS IN CALIFORNIA'S SACRAMENTO RIVER BASIN (1870-1992)



The Sacramento River Index (created by the California Department of Water Resources) is the combined annual flows of the Sacramento River at Bend Bridge, Feather River flow to Oroville reservoir, Yuba River at Smartville, and American River flow to Folsom Lake, adjusted to represent unimpaired runoff. The average annual value of the Index is 18.7 million acre-feet (maf).

California Water Conditions

(From *California Water Supply Outlook*, prepared and published by the California Department of Water Resources)

Statewide precipitation for February was an encouraging 160 percent of average. February accounts for about 16 percent of our annual precipitation on the average. The Sacramento Basin did well with 151 percent of average February, raising the March 1 average for this water year to 74 percent, up from 51 percent on February 1. The Sacramento Basin is still critically dry in spite of February's generous precipitation because if normal weather occurs for the rest of the season, runoff from the basin will only be about 55 percent of average.

In spite of improved precipitation and runoff the State's reservoirs are still rather low. Storage in California's major flood storage reservoirs is over 8 million acre feet (maf) below allowable storage at this time of year. For instance, Lake Shasta could collect another 2 maf of storage before any water would have to be spilled to meet flood control requirements. By contrast, Black Butte Reservoir was encroached on March 3, by 11,900 acre feet—16 percent of its flood control reservation space. The threat of more heavy rainfall in Stony Creek's basin would require Black Butte to release enough stored water to vacate the flood reservation space. On March 15 the flood control reservation requirement begins to decrease at Black Butte allowing increased storage during the spring, and depending on how wet the basin is, the requirement is completely removed between May 1 (in the dry case) and June 15 (if the basin is very wet).

Storage in the State's 155 major reservoirs rose over 2,900 trillion acre-feet (taf) during February, up to a total of 16,028 taf on March 1. Statewide storage rose from 55 percent of average on February 1 to 64 percent of average on March 1, and in percent of capacity from 35 percent to 43 percent respectively.

California Drought Update

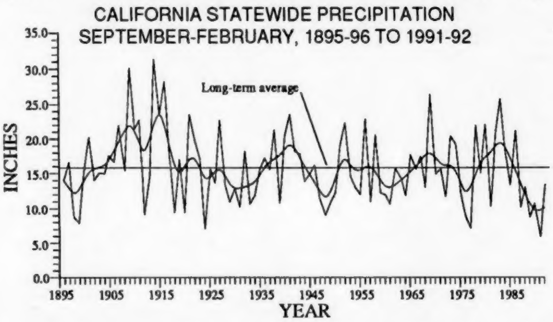
(From *Weekly Weather and Crop Bulletin*, prepared and published by the USDA/NOAA Joint Agricultural Weather Facility)

As February began, California was in the midst of a sixth consecutive water year of drought. Sierra Nevada snowpack, which is the primary source of the State's reservoir water, stood at 45 percent of normal. But between the 5th and the 21st, moisture repeatedly washed across the State, eventually supplying precious snowfall to the Sierra Nevada. When the storms subsided, the snowpack was at a moisture level of over 70 percent of normal. Very warm weather during the final week of February started spring snowmelt early, reducing the snowpack to 64 percent of normal by March 2, according to the California Drought Information Center. In the northern third of the Sierra Nevada, which had less snowmelt, the early March snowpack is 76 percent of normal.

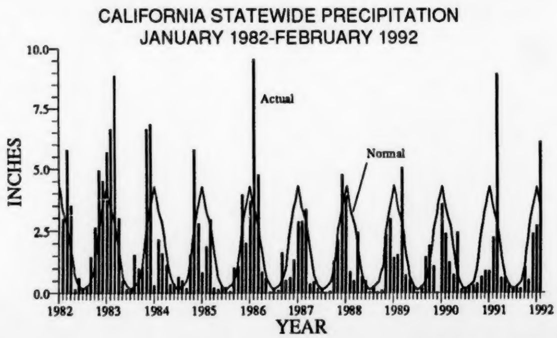
About 25 percent of the total normal annual precipitation falls March 1 to May 31—60 percent of it during March. Rainfall totals are scant during the summer months. Barring an exceptionally wet March, major water storage areas will soon conclude a sixth consecutive year of precipitation shortfalls.

California Precipitation

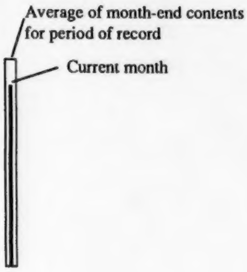
(From *Climate Variations Bulletin*, National Climatic Data Center, NOAA)



The long-term California drought continues. Statewide precipitation for the six-month period September through February, 1895-1991 is shown in the graph above. The actual yearly value was up significantly from that of the same period last year. Looking at the deficit in precipitation from another perspective, the graph below shows monthly statewide precipitation for January 1982-February 1992. The actual February 1992 value was considerably above the normal for the first time since March 1991.

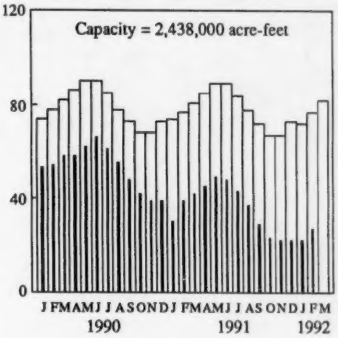


CALIFORNIA RESERVOIR INDEX STATIONS

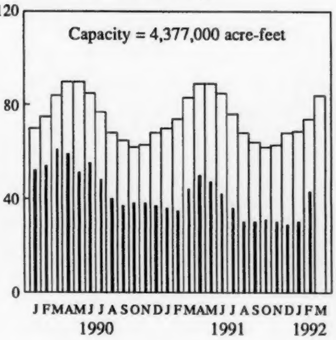


PERCENT OF NORMAL CAPACITY

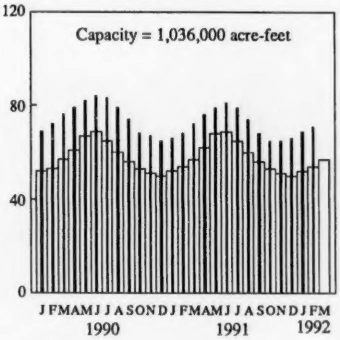
1. Clair Engle Lake near Lewiston



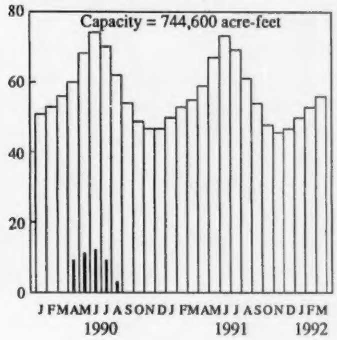
2. Shasta Lake near Redding



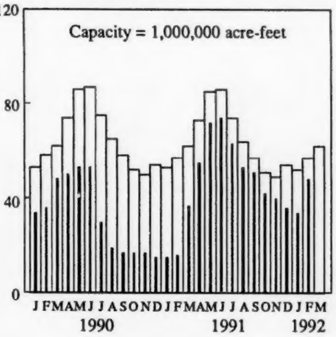
3. Lake Almanor near Prattville



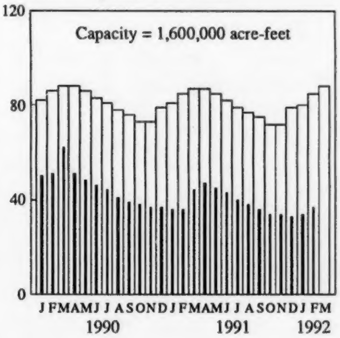
4. Lake Tahoe at Tahoe City



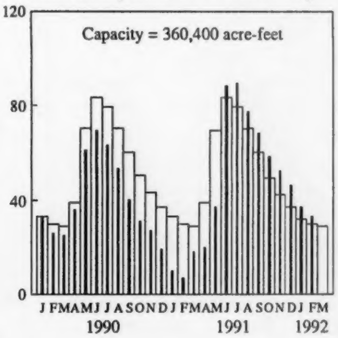
5. Folsom Lake near Folsom



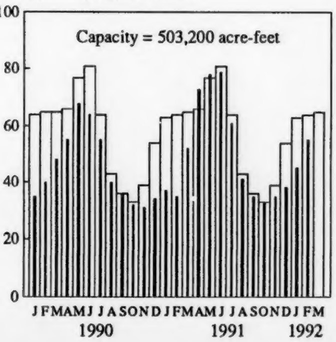
6. Lake Berryessa near Winters



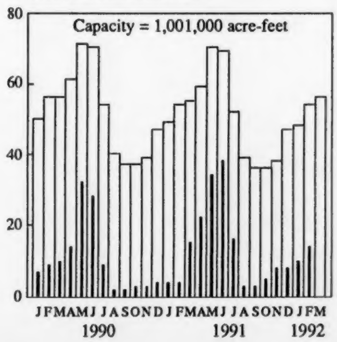
7. Hetch Hetchy Reservoir at Hetch Hetchy



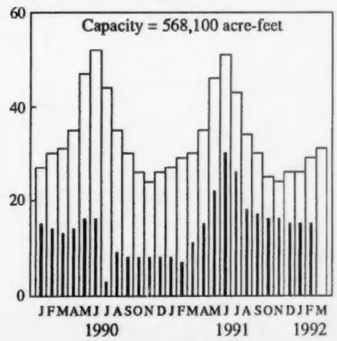
8. Millerton Lake at Friant



9. Pine Flat Lake near Piedra

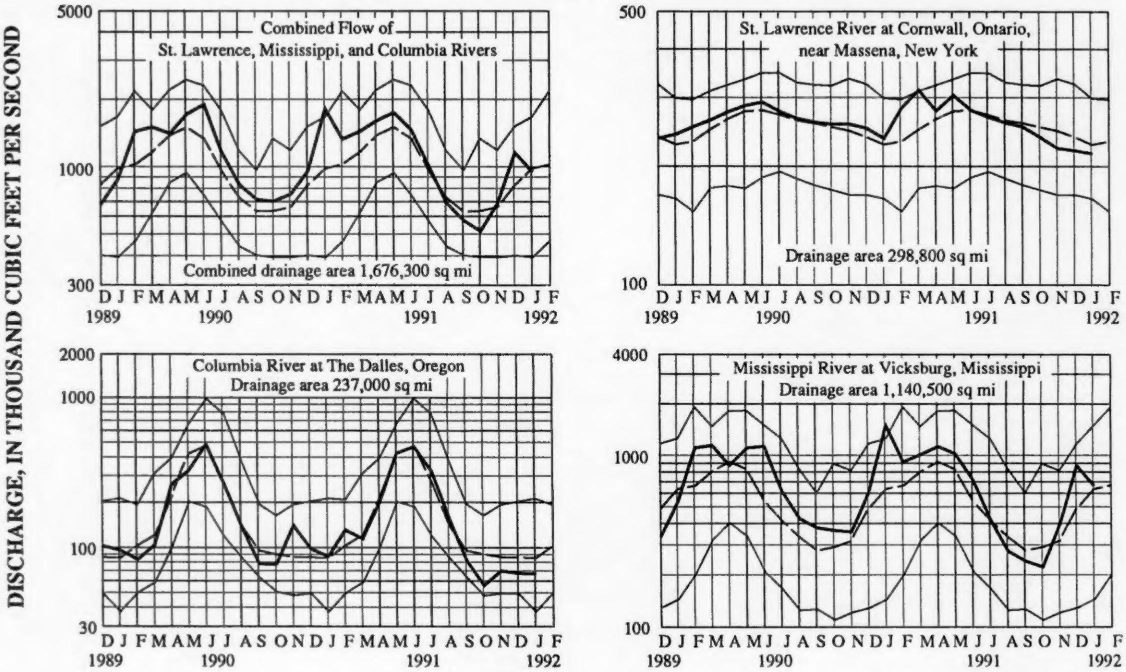


10. Isabella Lake near Lake Isabella



HYDROGRAPHS FOR THE "BIG THREE" RIVERS

Area between light-weight solid lines indicates range between highest and lowest record for the month. Dashed line indicates median of monthly values for reference period, 1951-80. Heavy line indicates mean for current period.



Provisional data; subject to revision

DISSOLVED SOLIDS AND WATER TEMPERATURES, FOR FEBRUARY 1992, AT DOWNSTREAM SITES ON FIVE LARGE RIVERS

Station number	Station name	February data of following calendar years	Stream discharge during month: Mean (cfs)	Dissolved-solids concentration[1]: Minimum (mg/L)	Dissolved-solids concentration[1]: Maximum (mg/L)	Dissolved-solids discharge[1]: Mean (tons per day)	Dissolved-solids discharge[1]: Minimum (tons per day)	Dissolved-solids discharge[1]: Maximum (tons per day)	Water temperature[2]: Mean in °C	Water temperature[2]: Minimum in °C	Water temperature[2]: Maximum in °C
01463500	Delaware River at Trenton,	1992	6,293	99	131	1,853	972	3,041	3.0	0.5	5.0
	New Jersey, (Morrisville,	1945-91	13,580	61	144	[3]3,444	647	15,600	[3]3.0	0	8.5
	Pennsylvania)	(Extreme yr)		(1954)	(1977)		(1976)	(1984)			
			[4]12,240								
07289000	Mississippi River at	1992	455,400	208	260	299,400	245,100	402,300	7.5	5.0	10.0
	Vicksburg, Mississippi	1976-91	707,200	153	288	387,400	108,000	628,200	5.5	0	10.5
		(Extreme yr)		(1989)	(1986)		(1977)	(1986)			
			[4]672,800								
03612500	Ohio River at lock and dam 53,	1992	198,000	214	248	...	68,900	173,000	...	5.5	9.0
	near Grand Chain, Illinois,	1955-91	456,700	98	308	...	44,900	548,000	...	0	10.0
	(streamflow station at Metropolis,	(Extreme yr)		(1957)	(1967)		(1955)	(1991)			
	Illinois)		[4]410,900								
06934500	Missouri River at Hermann,	1992	50,900	221	409	42,200	28,000	63,800	7.0	4.0	11.0
	Missouri. (60 miles west of	1976-91	67,230	205	537	68,720	23,500	237,000	3.5	0	12.0
	St. Louis, Missouri)	(Extreme yr)		(1985)	(1985)		(1977)	(1985)			
			[4]49,190								
14128910	Columbia River at Warrendale,	1992	123,000	95	105	33,500	27,000	41,800	5.5	5.0	6.5
	Oregon (streamflow station at	1976-90	167,600	87	128	50,790	24,500	106,500	3.5	0.5	7.0
	The Dalles, Oregon)	(Extreme yr)		(1976)	(1977, 1986)		(1989)	(1982)			
			[4]104,800								

[1]Dissolved-solids concentrations, when not analyzed directly, are calculated on basis of measurements of specific conductance.
[2]To convert °C to °F: [(1.8 x °C) + 32] = °F.
[3]Mean for 8-year period (1983-91).
[4]Median of monthly values for 30-year reference period, water years 1951-80, for comparison with data for current month.

Provisional data; subject to revision

FLOW OF LARGE RIVERS DURING FEBRUARY 1992

Station number	Stream and place of determination	Drainage area (square miles)	Average discharge through September 1985 (cubic feet per second)	February 1992: Monthly mean discharge (cubic feet per second)	Percent of median monthly discharge 1951–80	Change in discharge from previous month (percent)	Discharge near end of month: Cubic feet per second	Million gallons per day	Date
01014000	St. John River below Fish River at Fort Kent, Maine ...	5,665	9,758	2,945	149	–35	2,300	1,490	29
01318500	Hudson River at Hadley, New York	1,664	2,908	† 1,060	62	–50	982	634	29
01357500	Mohawk River at Cohoes, New York	3,456	5,683	3,280	66	–20	3,200	2,070	29
01463500	Delaware River at Trenton, New Jersey	6,780	11,670	† 6,293	51	–16	...	...	...
01570500	Susquehanna River at Harrisburg, Pennsylvania	24,100	34,340	† 17,600	44	–22	40,100	25,900	28
01646500	Potomac River near Washington, District of Columbia...	11,560	[1]11,500	† [1]6,960	44	–5	...	...	...
02105500	Cape Fear River at William O. Huske Lock, near Tarheel, North Carolina.	4,852	5,002	† 2,875	32	–33	...	...	...
02131000	Pee Dee River at Peedee, South Carolina	8,830	9,871	† 6,484	43	–15	21,700	14,000	29
02226000	Altamaha River at Doctortown, Georgia	13,600	13,730	25,620	116	84	40,500	26,200	29
02320500	Suwannee River at Branford, Florida	7,880	6,986	10,960	136	169	15,300	9,890	29
02358000	Apalachicola River at Chattahoochee, Florida	17,200	22,420	40,620	128	71	60,600	39,200	29
02467000	Tombigbee River at Demopolis lock and dam, near Coatopa, Alabama.	15,385	23,520	33,710	75	62	74,200	48,000	29
02489500	Pearl River near Bogalusa, Louisiana	6,573	9,880	21,500	126	43	13,300	8,600	29
03049500	Allegheny River at Natrona, Pennsylvania	11,410	[1]19,580	[1]19,220	75	14	36,500	23,600	27
03085000	Monongahela River at Braddock, Pennsylvania	7,337	[1]12,480	[1]15,580	85	31	31,500	20,400	...
03193000	Kanawha River at Kanawha Falls, West Virginia	8,367	12,550	15,210	80	27	33,500	21,600	29
03234500	Scioto River at Higby, Ohio	5,131	4,583	† 1,843	26	12	1,600	1,030	29
03294500	Ohio River at Louisville, Kentucky[2] #	91,170	115,800	† 115,100	66	–14	200,000	129,000	28
03377500	Wabash River at Mount Carmel, Illinois	28,635	27,660	† 16,670	45	21	16,800	10,900	29
03469000	French Broad River below Douglas Dam, Tennessee[3] #.	4,543	[1]6,739	† 7,021	69	0	...	...	...
04084500	Fox River at Rapide Croche Dam,	6,010	4,238	[1]3,423	95	–28	3,940	2,550	29
	near Wrightstown, Wisconsin.[2]			225,000	97	4	228,000	147,000	29
04264331	St. Lawrence River at Cornwall, Ontario,	298,800	243,900						
	near Massena, New York.[4] #			5,920	96	5	...	...	...
02NG001	St. Maurice River at Grand Mere, Quebec	16,300	24,910						
05082500	Red River of the North at Grand Forks, North Dakota...	30,100	2,593	† 480	43	–7	487	314	29
05133500	Rainy River at Manitou Rapids, Minnesota	19,400	12,920	8,500	91	–6	8,500	5,490	25
05330000	Minnesota River near Jordan, Minnesota	16,200	3,680	* 2,763	547	–6	4,000	2,600	29
05331000	Mississippi River at St. Paul, Minnesota#	36,800	[1]11,020	* 7,979	161	–16	8,600	5,560	29
05365500	Chippewa River at Chippewa Falls, Wisconsin	5,650	5,149	3,666	111	–17	2,170	1,400	29
05407000	Wisconsin River at Muscoda, Wisconsin	10,400	8,710	* 8,979	130	0	9,000	5,800	29
05446500	Rock River near Joslin, Illinois	9,549	6,080	7,730	174	7	9,000	5,800	29
05474500	Mississippi River at Keokuk, Iowa#	119,000	63,790	* 71,080	171	7	78,200	50,500	29
06214500	Yellowstone River at Billings, Montana	11,795	7,056	† 2,110	78	–2	2,110	1,360	29
06934500	Missouri River at Hermann, Missouri#	524,200	80,880	50,900	103	31	63,000	40,700	29
07289000	Mississippi River at Vicksburg, Mississippi[5] #	1,140,500	584,000	† 455,400	68	–32	620,000	401,000	29
07331000	Washita River near Dickson, Oklahoma	7,202	1,402	* 2,044	496	–37	28	18	27
08276500	Rio Grande below Taos Junction Bridge, near Taos, New Mexico.	9,730	742	545	113	7	600	390	29
09315000	Green River at Green River, Utah	44,850	6,391	2,669	89	–9	...	...	...
11425500	Sacramento River at Verona, California	21,251	19,430	† 25,440	67	153	...	...	...
13269000	Snake River at Weiser, Idaho	69,200	18,520	† 12,300	63	9	11,800	7,630	29
13317000	Salmon River at White Bird, Idaho	13,550	11,390	† 3,890	85	14	4,600	2,970	29
13342500	Clearwater River at Spalding, Idaho	9,570	15,510	10,100	102	148	14,000	9,000	29
14105700	Columbia River at The Dalles, Oregon[6] #	237,000	[1]193,500	[1]94,280	90	39	150,000	96,800	29
14191000	Willamette River at Salem, Oregon	7,280	[1]23,690	† [1]30,800	67	45	17,700	11,400	29
15515500	Tanana River at Nenana, Alaska	25,600	23,810	* 7,841	123	–6	7,600	4,910	29
08MF005	Fraser River at Hope, British Columbia	83,800	96,250	* 41,670	123	8	37,400	24,200	26

#Indicates stations excluded from the combination bar/line graph. See Explanation of Data.

* Above–normal range

† Below–normal range

[1]Adjusted.

[2]Records furnished by Corps of Engineers.

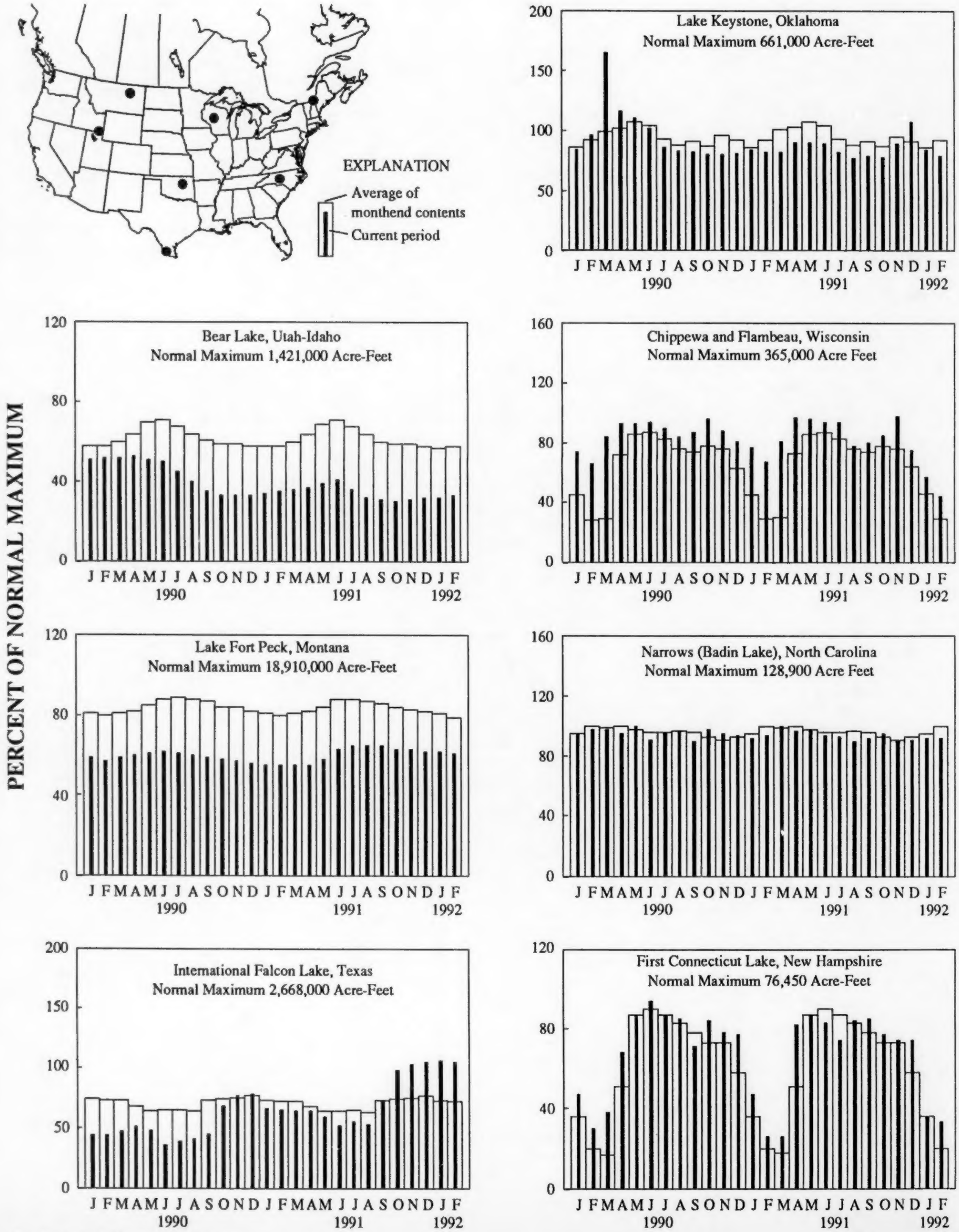
[3]Records furnished by Tennessee Valley Authority.

[4]Records furnished by Buffalo District, Corps of Engineers, through International St. Lawrence River Board of Control. Discharges shown are considered to be the same as discharge at Ogdensburg, N.Y., when adjusted for storage in Lake St. Lawrence.

[5]Records of daily discharge computed jointly by Corps of Engineers and Geological Survey.

[6]Discharge determined from information furnished by Bureau of Reclamation, Corps of Engineers, and Geological Survey.

USABLE CONTENTS OF SELECTED RESERVOIRS AND RESERVOIR SYSTEMS



USABLE CONTENTS OF SELECTED RESERVOIRS AND RESERVOIR SYSTEMS NEAR END OF FEBRUARY 1992

[Contents are expressed in percent of reservoir or reservoir system capacity. The usable capacity of reservoir or reservoir system is shown in the column headed "Normal maximum"]

Reservoir or reservoir system Principal uses: F-Flood control I-Irrigation M-Municipal P-Power R-Recreation W-Industrial	Percent of normal maximum: End of February 1992	End of February 1991	Average for end of February	End of January 1992	Normal maximum (acre-feet)[1]
NOVA SCOTIA					
Rossignol, Mulgrave, Falls Lake, St. Margaret's Bay, Black, and Ponhook Reservoirs (P)	† 51	49	59	72	[2]226,300
QUEBEC					
Allard (P)	33	40	30	62	280,600
Gouin (P)	48	65	52	59	6,954,000
MAINE					
Seven Reservoir Systems (MP)	* 46	54	40	60	4,107,000
NEW HAMPSHIRE					
First Connecticut Lake (P)	* 33	26	20	36	76,450
Lake Francis (FPR)	* 44	52	32	59	99,310
Lake Winnipesaukee (PR)	48	54	51	65	165,700
VERMONT					
Harriman (P)	* 44	42	33	52	116,200
Somerset (P)	* 61	63	51	75	57,390
MASSACHUSETTS					
Cobble Mountain and Borden Brook (MP)	* 79	86	70	81	77,920
NEW YORK					
Great Sacandaga Lake (FPR)	40	54	36	51	786,700
Indian Lake (FMP)	* 54	56	43	59	103,300
New York City Reservoir System (MW)	† 59	95	83	60	1,680,000
NEW JERSEY					
Wanaque (M)	85	93	80	75	85,100
PENNSYLVANIA					
Allegheny (FPR)	31	31	26	29	1,180,000
Pymatuning (FMR)	† 76	88	86	70	188,000
Raystown Lake (FR)	59	67	58	58	761,900
Lake Wallenpaupack (PR)	51	54	51	64	157,800
MARYLAND					
Baltimore Municipal System (M)	† 71	98	88	68	261,900
NORTH CAROLINA					
Bridgewater (Lake James) (P)	87	86	84	86	288,800
Narrows (Badin Lake) (P)	† 92	94	100	92	128,900
High Rock Lake (P)	72	63	74	54	234,800
SOUTH CAROLINA					
Lake Murray (P)	* 86	85	72	79	1,614,000
Lakes Marion and Moultrie (P)	79	80	76	75	1,777,000
SOUTH CAROLINA-GEORGIA					
Strom Thurmond Lake (FP)	71	75	66	64	1,730,000
GEORGIA					
Burton (PR)	* 82	81	68	70	104,000
Sinclair (MPR)	* 93	94	87	91	214,000
Lake Sidney Lanier (FMPR)	60	51	56	53	1,686,000
ALABAMA					
Lake Martin (P)	* 86	79	76	75	1,375,000
TENNESSEE VALLEY					
Clinch Projects: Norris and Melton Hill Lakes (FPR)	43	59	40	40	2,293,000
Douglas Lake (FPR)	26	29	22	12	1,395,000
Hiwassee Projects: Chatuge, Nottely, Hiwassee, Apalachia, Blue Ridge, Ocoee 3, and Parksville Lakes (FPR)	* 57	57	50	46	1,012,000
Holston Projects: South Holston, Watauga, Boone, Fort Patrick Henry, and Cherokee Lakes (FPR)	* 55	60	43	46	2,880,000
Little Tennessee Projects: Nantahala, Thorpe, Fontana, and Chilhowee Lakes (FPR)	* 56	61	48	51	1,478,000
WISCONSIN					
Chippewa and Flambeau (PR)	* 44	67	29	57	365,000
Wisconsin River (21 Reservoirs) (PR)	* 38	42	20	62	399,000
MINNESOTA					
Mississippi River Headwater System (FMR)	* 25	30	18	25	1,640,000
NORTH DAKOTA					
Lake Sakakawea (Garrison) (FIPR)	† 59	54	76	61	22,700,000
SOUTH DAKOTA					
Angostura (I)	76	45	71	74	130,770
Belle Fourche (I)	† 33	28	53	29	185,200
Lake Francis Case (FIP)	76	75	76	67	4,589,000
Lake Oahe (FIP)	65	59	68	63	22,240,000
Lake Sharpe (FIP)	102	100	99	100	1,697,000
Lewis and Clark Lake (FIP)	90	84	89	94	432,000

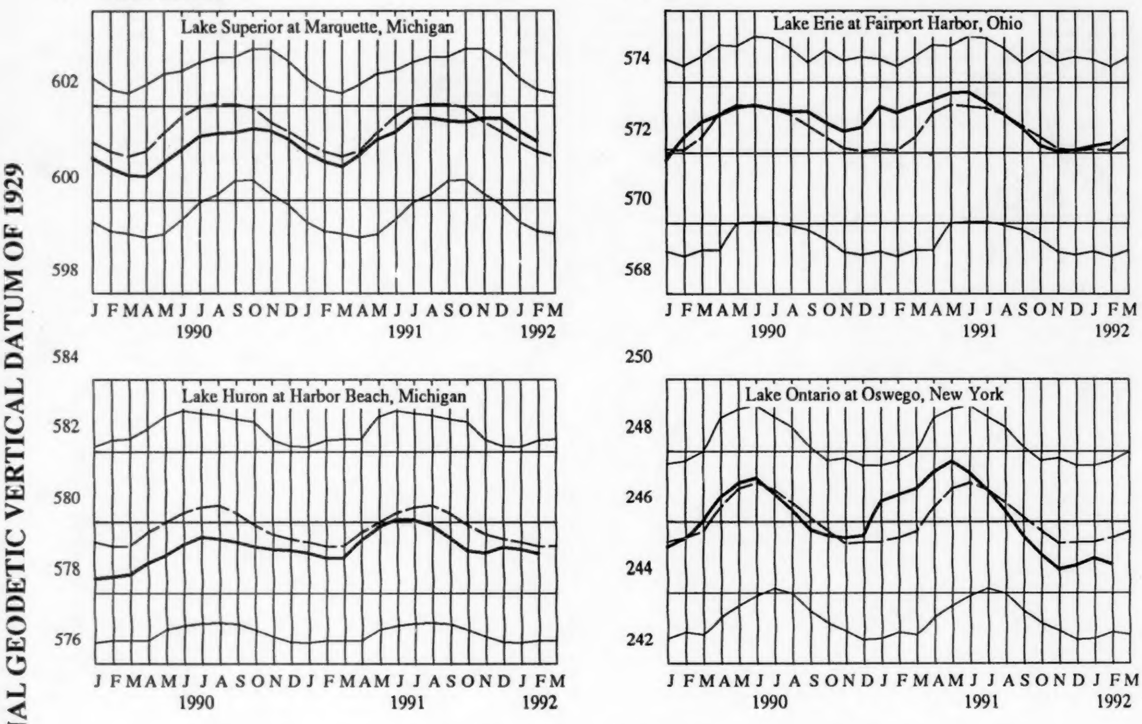
Reservoir or reservoir system Principal uses: F-Flood control I-Irrigation M-Municipal P-Power R-Recreation W-Industrial	Percent of normal maximum: End of February 1992	End of February 1991	Average for end of February	End of January 1992	Normal maximum (acre-feet)[1]
NEBRASKA					
Lake McConaughy (IP)	† 57	56	74	55	1,948,000
OKLAHOMA					
Eufaula (FPR)	* 94	94	88	97	2,378,000
Keystone (FPR)	† 79	82	92	84	661,000
Tenkiller Ferry (FPR)	* 102	102	92	103	628,200
Lake Altus (FIMR)	* 85	67	54	78	133,000
Lake O'The Cherokees (FPR)	* 89	88	82	88	1,492,000
OKLAHOMA-TEXAS					
Lake Texoma (FMPRW)	* 97	95	88	98	2,722,000
TEXAS					
Bridgeport (IMW)	* 99	87	49	97	386,400
Canyon (FMR)	* 147	97	81	113	385,600
International Amistad (FIMPW)	* 112	95	84	110	3,497,000
International Falcon (FIMPW)	* 105	65	72	106	2,668,000
Livingston (IMW)	* 109	104	91	106	1,788,000
Possum Kingdom (IMPRW)	95	92	93	95	570,200
Red Bluff (P)	* 41	24	32	39	307,000
Toledo Bend (P)	* 103	103	88	93	4,472,000
Twin Buttes (FIM)	* 57	54	36	47	177,800
Lake Kemp (IMW)	* 103	94	85	100	268,000
Lake Meredith (FMW)	39	31	36	39	796,900
Lake Travis (FIMPRW)	* 111	100	82	111	1,144,000
MONTANA					
Canyon Ferry (FIMPR)	† 70	70	77	72	2,043,000
Fort Peck (FPR)	† 61	55	79	62	18,910,000
Hungry Horse (FIPR)	† 54	60	63	57	3,451,000
WASHINGTON					
Ross (PR)	* 48	46	40	59	1,052,000
Franklin D. Roosevelt Lake (IP)	* 99	89	68	102	5,022,000
Lake Chelan (PR)	† 27	68	35	36	676,100
Lake Cushman (PR)	80	83	81	90	359,500
Lake Merwin (P)	97	99	96	100	245,600
IDAHO					
Boise River (4 Reservoirs) (FIP)	† 30	42	61	26	1,235,000
Coeur d'Alene Lake (P)	* 95	104	52	44	238,500
Pend Oreille Lake (FP)	† 43	43	51	39	1,561,000
IDAHO-WYOMING					
Upper Snake River (8 Reservoirs) (MP)	71	57	69	64	4,401,000
WYOMING					
Boysen (FIP)	68	73	67	70	802,000
Buffalo Bill (IP)	59	42	61	58	421,300
Keyhole (F)	† 1	16	41	15	193,800
Pathfinder, Seminoe, Alcova, Kortes, Glendo, and Guernsey Reservoirs (I)	† 38	35	51	37	3,056,000
COLORADO					
John Martin (FIR)	† 17	16	23	12	364,400
Taylor Park (IR)	* 64	68	56	66	106,200
Colorado-Big Thompson Project (I)	53	48	56	53	730,300
COLORADO RIVER STORAGE PROJECT					
Lake Powell; Flaming Gorge, Fontenelle, Navajo, and Blue Mesa Reservoirs (IFPR)	† 60	64	70	61	31,620,000
UTAH-IDAHO					
Bear Lake (IPR)	† 33	35	58	32	1,421,000
CALIFORNIA					
Folsom (FIMPR)	† 48	16	56	34	1,000,000
Hetch Hetchy (MP)	33	7	29	37	360,400
Isabella (FIR)	† 15	7	29	15	568,100
Pine Flat (FIR)	† 14	4	53	10'	1,001,000
Clair Engle Lake (Lewiston) (FP)	† 27	39	76	22	2,438,000
Lake Almanor (P)	* 71	68	54	69	1,036,000
Lake Berryessa (FIMRW)	† 37	36	84	34	1,600,000
Millerton Lake (FI)	† 55	35	63	45	503,200
Shasta Lake (FIPR)	† 43	35	73	30	4,377,000
CALIFORNIA-NEVADA					
Lake Tahoe (IMPRW)	† 0	0	51	0	744,600
NEVADA					
Rye Patch (I)	† 5	1	52	3	194,300
ARIZONA-NEVADA					
Lake Mead and Lake Mohave (FIMP)	* 77	78	70	76	27,970,000
ARIZONA					
San Carlos (IP)	* 73	21	29	57	935,100
Salt and Verde River System (IMPR)	* 80	49	49	78	2,019,100
NEW MEXICO					
Conchas (FIR)	* 95	61	82	93	315,700
Elephant Butte and Caballo (FIPR)	* 81	67	45	80	2,394,000

[1]1 acre-foot = 0.04356 million cubic feet = 0.326 million gallons = 0.504 cubic feet per second per day.
[2]Thousands of kilowatt-hours (the potential electric power that could be generated by the volume of water in storage).

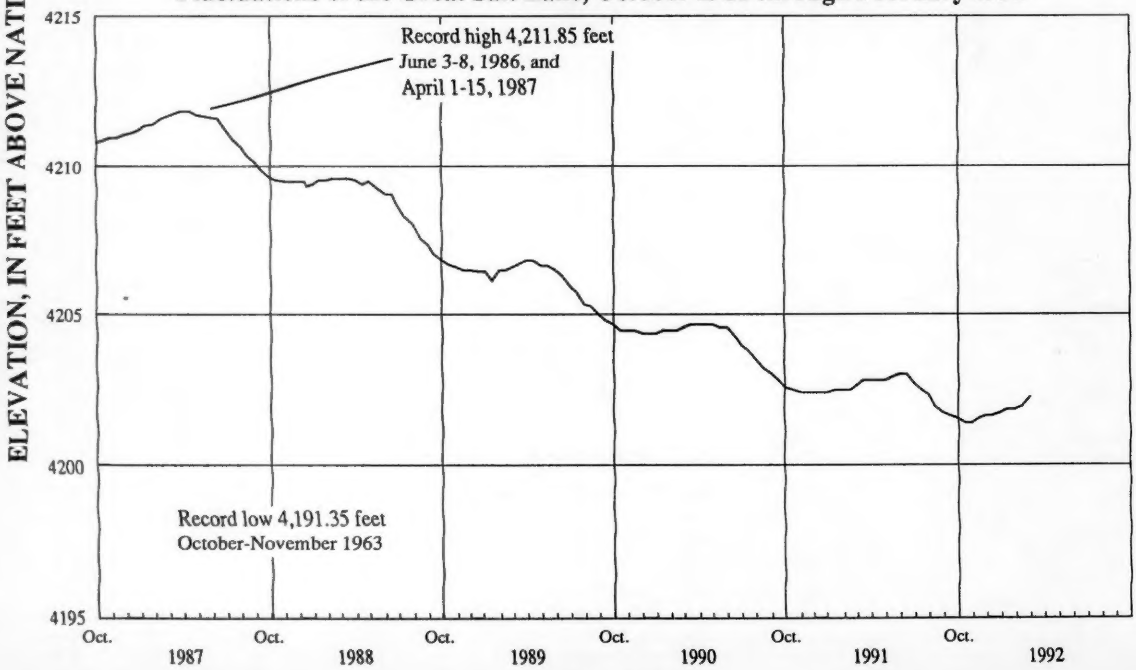
* Above-average range
† Below-average range

GREAT LAKES ELEVATIONS

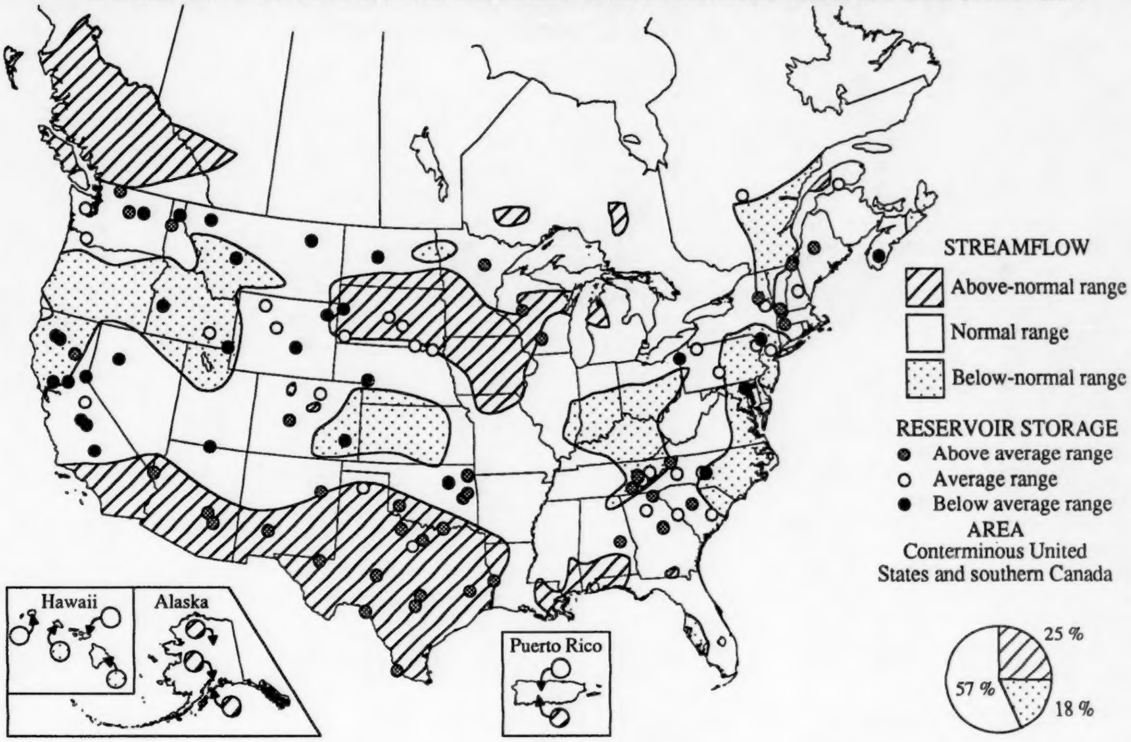
Area between light-weight solid lines indicates range between highest and lowest record for the month. Dashed line indicates median of monthly values for reference period, 1951-80. Heavy line indicates mean for current period. Data from National Ocean Service.



Fluctuations of the Great Salt Lake, October 1986 through February 1992

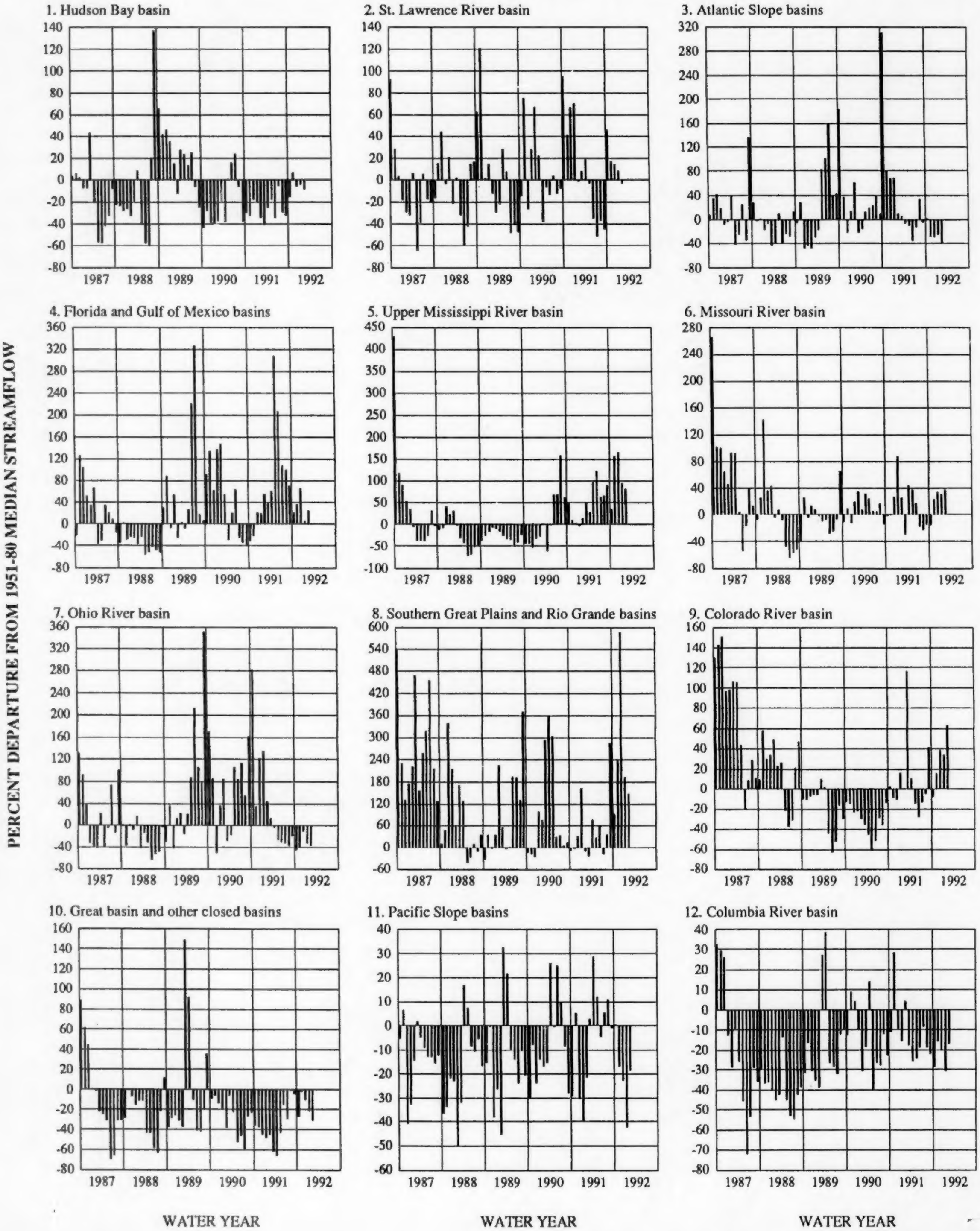


STREAMFLOW CONDITIONS AND RESERVOIR STORAGE DURING FEBRUARY 1992

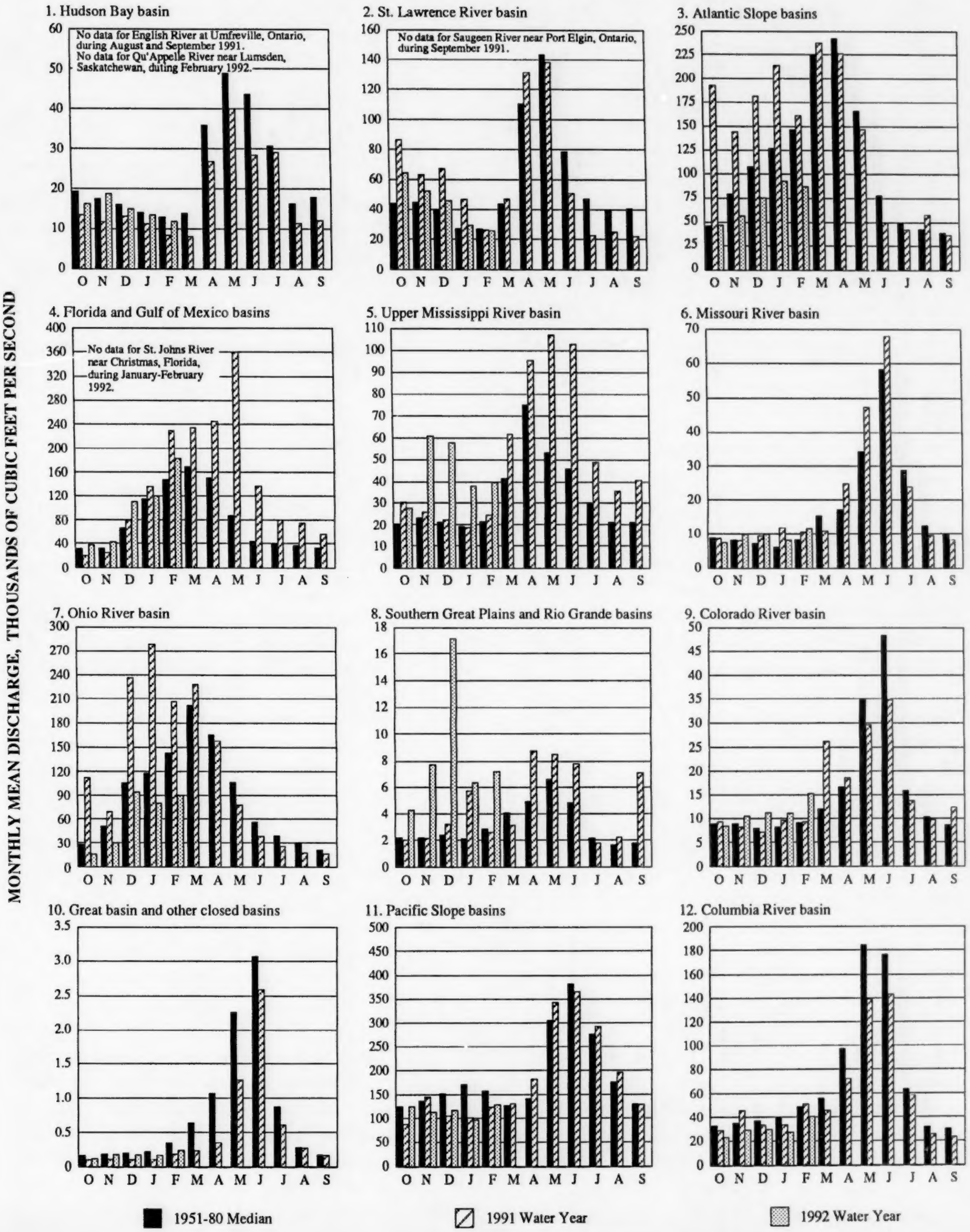


STREAMFLOW CONDITIONS AND RESERVOIR STORAGE DURING FEBRUARY 1991

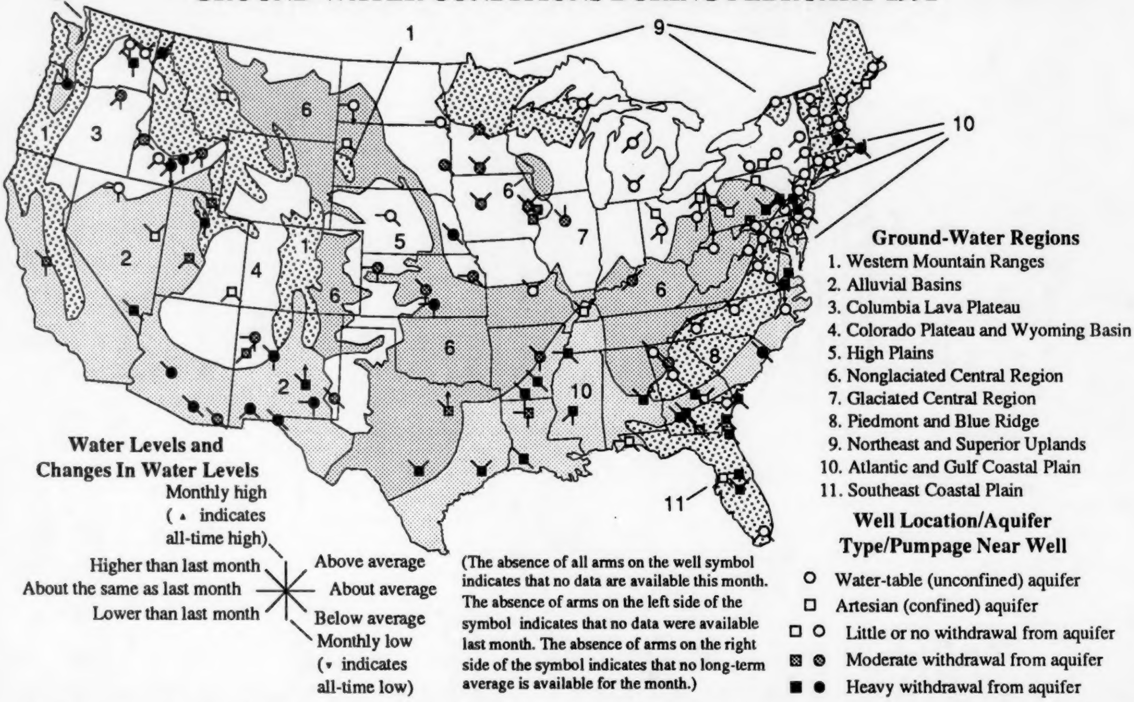
MONTHLY DEPARTURE OF ACTUAL STREAMFLOW (OCTOBER 1986-FEBRUARY 1992) FROM MEDIAN STREAMFLOW (1951-80)



ACTUAL MONTHLY STREAMFLOW, 1991 AND 1992 WATER YEARS, COMPARED WITH MEDIAN MONTHLY STREAMFLOW, 1951-80



GROUND-WATER CONDITIONS DURING FEBRUARY 1992



New extremes occurred at 32 ground-water index stations (see table on page 18) during February-27 lows (including 4 all-time) and 5 highs (including 3 all-time)—compared with 36 new extremes last month. Graphs showing water levels at seven stations for the past 26 months are on page 19. The graphs on page 19 are for wells in the Columbia Lava Plateau region in Idaho, the Alluvial Basins region in Arizona, the Nonglaciated Central region in North Dakota and Texas, the Glaciated Central region in Illinois, the Atlantic and Gulf Coastal Plain region in Florida, and the Northeast and Superior Uplands region in Connecticut.

Ground-water levels in the Western Mountain Ranges region were above last month's levels in Washington and Montana, and below last month's in Idaho. Levels were above long-term averages in Washington and Idaho, and below average in Montana.

In the Alluvial Basins region, ground-water levels were at or above last month's levels except in Utah and New Mexico where they were mixed. Levels were above long-term averages in Oregon, mixed in Nevada and New Mexico, and below average elsewhere in the Region. February lows occurred in wells in California, Utah, and New Mexico. Level rose to a February high in the well in Oregon. An all-time high occurred in a well in the Roswell Basin artesian aquifer at Roswell, New Mexico.

In the Columbia Lava Plateau region, water levels were at or below last month's except in Washington where they were mixed with respect to last month's levels. Levels were below long-term averages throughout the Region. February low levels occurred in three wells in Idaho (see graph on page 19), one in Oregon, and two in Washington. All-time lows occurred in the wells in the Snake River Plain aquifer near Eden, Idaho, and in the sand aquifer interbedded in Grande Ronde Basalt near Mansfield, Washington.

Ground-water levels in the Colorado Plateau and Wyoming Basin region were at or below last month's levels throughout the Region. Levels were below long-term average in Utah, and mixed with respect to average in New Mexico. A February low occurred in a well in New Mexico.

In the High Plains region, ground-water levels were at or above last month's levels, but below long-term averages. A February low occurred in the well in Kansas.

Ground-water levels in the Nonglaciated Central region were below last month's levels in South Dakota, Kentucky, and Virginia; mixed in Pennsylvania, and at or above last month's levels elsewhere. Levels were above long-term averages in Texas, Missouri, Kentucky, and West Virginia; mixed in Pennsylvania; and below average elsewhere. February lows occurred in two wells in Kansas, and an all-time low occurred in the Sentinel Butte aquifer near Dickinson, North Dakota (see graph on page 19). All-time highs occurred in the wells in the Twin Mountains (Trinity) aquifer near Hurst/Fort Worth, Texas, and in the Upper Pennsylvanian aquifer near Glenville, West Virginia.

Provisional data; subject to revision

WATER LEVELS IN KEY OBSERVATION WELLS IN SOME REPRESENTATIVE AQUIFERS IN THE CONTERMINOUS UNITED STATES–FEBRUARY 1992

GROUND–WATER REGION Aquifer and Location	Aquifer type and local aquifer pumpage	Depth of well in feet	Water level in feet below land–surface datum	Departure from average in feet	Net change in water level in feet since:		Year records began	Remarks
					Last month	Last year		
WESTERN MOUNTAIN RANGES (1)								
Rathdrum Prairie aquifer near Athol, northern Idaho	●	485	461.7	0.6	–5.6	0.7	1929	
ALLUVIAL BASINS (2)								
Alluvial valley fill aquifer in Steptoe Valley, Nevada	□	122	8.00	3.90	.20	–.29	1949	
Valley fill aquifer, Elfrida area near Douglas, Arizona	◍	124	101.66	–19.41	.27	–1.25	1947	
Hueco bolson aquifer at El Paso, Texas	●	640	271.03	–20.44	.23	.10	1964	
COLUMBIA LAVA PLATEAU (3)								
Snake River Plain aquifer near Eden, Idaho	●	208	132.5	–11.3	–1.4	–4.0	1962	All–time low
Columbia River basalt aquifer, Pendleton, Oregon		1,501	223.29	–38.43	–2.88	–5.22	1965	Feb. low
COLORADO PLATEAU AND WYOMING BASIN (4)								
Dakota aquifer near Blanding, Utah	□	140	50.41	–3.72	–.19	–2.47	1960	
HIGH PLAINS (5)								
Ogallala aquifer near Colby, Kansas	◍	175	130.63	–11.85	–.04	–1.27	1947	Feb. low
Southern High Plains aquifer, Lovington, New Mexico	◍	212	59.10	–5.21	.10	.50	1971	
NONGLACIATED CENTRAL REGION (6)								
Sentinel Butte aquifer near Dickinson, North Dakota	○	160	21.78	–3.13	–.03	–.62	1968	All–time low
Sand and gravel Pleistocene aquifer near Valley Center, Kansas	●	54	21.08	–3.34	0	–.68	1937	Feb. low
Glacial outwash sand and gravel aquifer near Louisville, Kentucky	◍	94	18.05	6.59	–.19	–.62	1945	
Upper Pennsylvanian aquifer in the Central Appalachians Plateau near Glenville, West Virginia	○	25	12.40	3.48	.04	2.65	1953	All–time high
GLACIATED CENTRAL REGION (7)								
Fluvial sand and gravel aquifer, Platte River Valley, near Ashland, Nebraska	●	12	6.32	–.99	.62	.33	1933	
Sheyenne Delta aquifer near Wyndmere, North Dakota	○	40	8.41	–1.37	–.02	.43	1963	
Pleistocene (glacial drift) aquifer at Princeton in northern Illinois	◍	29	5.75	5.39	.25	.50	1942	Feb. high
Shallow drift aquifer near Roscommon in north–central part of Lower Peninsula, Michigan	○	14	4.11	.86	–.32	.88	1934	
Silurian–Devonian carbonate aquifer near Dola, Ohio	□	51	8.26	–.35	2.41	–2.04	1954	
PIEDMONT AND BLUE RIDGE (8)								
Water–table aquifer in Petersburg Granite, southeastern Piedmont, Colonial Heights, Virginia	○	100	16.42	–1.65	.40	–1.75	1939	
Weathered granite aquifer, western Piedmont, Mocksville area, North Carolina	○	31	16.03	1.01	.55	–1.07	1981	
Surficial aquifer at Griffin, Georgia	○	30	16.96	–2.81	1.15	.37	1943	
NORTHEAST AND SUPERIOR UPLANDS (9)								
Pleistocene glacial outwash aquifer, at Camp Ripley, near Little Falls, Minnesota	◍	59	15.51	–1.97	–.51	.03	1949	
Glacial outwash sand aquifer at Oxford, Maine	○	39	8.79	.53	–.23	.01	1980	
Shallow sand aquifer (glacial deposits), Acton, Massachusetts	●	34	18.85	–.05	–.37	–.87	1965	
Pleistocene sand aquifer near Morrisville, Vermont	○	50	18.74	–.08	.08	–.13	1966	
ATLANTIC AND GULF COASTAL PLAIN (10)								
Columbia deposits aquifer near Camden, Delaware	○	11	8.85	–2.68	–.18	–2.05	1950	Feb. low
Memphis sand aquifer near Memphis, Tennessee	■	384	106.37	–15.49	.03	.96	1940	
Eutaw aquifer in the City of Montgomery, Alabama	■	270	19.8	.1	3.0	6.3	1952	
Evangeline aquifer at Houston, Texas	■	1,152	289.92	7.94	.69	16.49	1978	
SOUTHEAST COASTAL PLAIN (11)								
Upper Floridan aquifer on Cockspur Island, Savannah area, Georgia	■	348	33.90	–7.02	–1.19	2.83	1956	
Upper Floridan aquifer, Jacksonville, Florida	■	905	–23.2	–3.9	.2	2.4	1930	
Biscayne aquifer near Homestead, Florida	○	20	7.11	–.53	–.76	1.13	1932	

Levels in the Glaciated Central region were at or above last month's in North Dakota, Minnesota, Nebraska, Iowa, Kansas, Illinois, and Pennsylvania but mixed in Michigan, Ohio, and New York. Levels were above long-term averages in Minnesota, Illinois, and Michigan; mixed in Iowa; and below average elsewhere. February lows occurred in wells in Iowa and Ohio. A February high (graph on page 19) occurred in a well in Illinois.

Ground-water levels in the Piedmont and Blue Ridge region were above last month's levels in New Jersey, Maryland, North Carolina, and Georgia; and mixed with respect to last month's levels in Pennsylvania and Virginia. Levels were below long-term averages in New Jersey, Maryland, and Georgia; above long-term averages in North Carolina; and mixed in Pennsylvania and Virginia. A February low occurred in a well in Virginia.

Provisional data; subject to revision

NEW EXTREMES DURING FEBRUARY AT GROUND–WATER INDEX STATIONS

WRD Station Identification Number	GROUND–WATER REGION Aquifer and Location	Aquifer type and local aquifer pumpage	Depth of well	Years of record	End–of–month water level in feet below land surface datum: Previous February Record: Average	Extreme (year)	February 1992
	LOW WATER LEVELS						
	ALLUVIAL BASINS						
324340104231701	Roswell Basin shallow aquifer at Dayton, New Mexico	●	250	40	92.27	122.70 (1991)	123.24
351051106395301	Basin-fill aquifer at Albuquerque, New Mexico	●	980	8	32.10	35.25 (1991)	35.97
382444121123301	Mehrten aquifer near Wilton, California	▩	300	5	131.19	135.24 (1991)	136.83
403803111505301	Basin fill aquifer near Holladay, Utah	■	165	12	62.12	77.98 (1991)	78.56
	COLUMBIA LAVA PLATEAU						
423659114111601	Snake River Plain aquifer near Eden, Idaho	●	208	29	121.2	128.6 (1982)	[1]132.5
424953113412801	Snake River Plain aquifer near Rupert, Idaho	●	194	41	150.6	159.3 (1991)	161.1
432700112470801	Snake River Plain aquifer near Atomic City, Idaho	◍	636	42	584.7	587.6 (1982)	588.0
453934118491701	Columbia River basalts aquifer at Pendleton, Oregon	◍	1,501	22	184.86	218.07 (1991)	223.29
471347118410106	Grande Ronde Basalt aquifer near Odessa, Washington	■	704	29	338.29	394.82 (1991)	398.90
474855119303904	Sand aquifer interbedded in Grande Ronde Basalt near Mansfield, Washington	○	60	16	19.19	23.46 (1991)	[1]25.35
	COLORADO PLATEAU AND WYOMING BASIN						
352023107473201	Westwater Canyon aquifer near Grants–Bluewater, New Mexico	◍	155	36	70.12	78.19 (1991)	79.52
	HIGH PLAINS						
392329101040201	Ogallala aquifer near Colby, Kansas	◍	175	44	118.78	129.36 (1991)	130.63
	NONGLACIATED CENTRAL REGION						
375039097234201	Sand and gravel Pleistocene aquifer near Valley Center, Kansas	●	54	54	17.74	20.40 (1991)	21.08
375810097324301	Equus aquifer near Halstead, Kansas	◍	57	52	22.43	36.40 (1991)	39.37
465755102410701	Sentinel Butte aquifer near Dickinson, North Dakota	○	160	22	18.65	21.16 (1991)	21.78
	GLACIATED CENTRAL REGION						
395118082573300	Glacial-drift aquifer near Reese, Ohio	○	53	45	11.06	13.21 (1964)	13.27
403207081293800	Glacial–drift aquifer near Dover, Ohio	○	62	31	8.23	11.10 (1964)	12.98
411401081025000	Pennsylvanian sandstone aquifer near Windham, Ohio	□	55	45	20.06	22.93 (1954)	23.15
415534091251502	Cambrian Ordovician aquifer at Mt. Vernon, Iowa	▩	1,557	4	336.64	338.24 (1991)	341.44
	PIEDMONT AND BLUE RIDGE						
385638077220101	Water-table aquifer at Reston, Virginia	○	205	15	11.40	13.67 (1981)	14.23
	ATLANTIC AND GULF COASTAL PLAIN						
321945090152201	Sparta aquifer system at Jackson, Mississippi	■	852	47	258.91	307.79 (1991)	310.67
322357092341701	Sparta aquifer near Ruston, Louisiana	◍	703	17	223.41	236.92 (1991)	237.32
331438092411901	Sparta aquifer near El Dorado, Arkansas	■	540	36	319.03	352.00 (1991)	370.36
344607091543401	Mississippi Valley alluvial aquifer near Lonoke, Arkansas	●	135	16	107.34	115.61 (1991)	116.01
364059076544901	Middle Potomac aquifer at Franklin, Virginia	●	305	31	168.65	209.09 (1991)	[1]212.64
372506076511703	Upper Potomac aquifer near Toano, Virginia	■	401	5	159.02	162.21 (1991)	[1]163.61
390607075331501	Columbia deposits aquifer near Camden, Delaware	○	11	27	6.17	8.69 (1983)	8.85
	HIGH WATER LEVELS						
	ALLUVIAL BASINS						
332615104303601	Roswell Basin artesian aquifer at Roswell, New Mexico	■	324	25	51.98	38.10 (1991)	[2]33.70
452938122254801	Troutdale aquifer near Portland, Oregon	●	715	28	102.63	87.81 (1991)	87.45
	NONGLACIATED CENTRAL REGION						
324842097102901	Twin Mountains (Trinity) aquifer near Hurst/Fort Worth, Texas	◍	667	13	458.39	444.40 (1984)	[2]441.07
385604080495901	Upper Pennsylvanian aquifer near Glenville, West Virginia	○	25	38	15.88	14.09 (1990)	[2]12.40
	GLACIATED CENTRAL REGION						
412220089280301	Glacial-drift aquifer at Princeton, Illinois	◍	29	49	11.14	5.85 (1988)	5.75

[1] All–time month–end low. [2]All–time month–end high

In the Northeast and Superior Uplands region, levels were at or below last month's levels throughout the Region. Levels were above long-term averages in Michigan and Maine; mixed with respect to average in New Hampshire; and at or below average elsewhere.

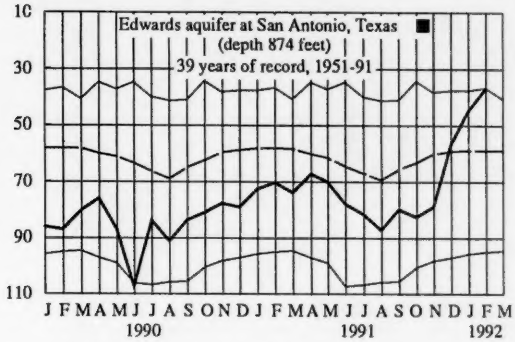
In the Atlantic and Gulf Coastal Plain region, water levels were at or below last month's in Massachusetts, Delaware, Virginia, North Carolina, Florida, Mississippi, and Tennessee; mixed in New Jersey; and above last month's levels elsewhere. Ground-water levels were above long-term averages in Alabama, Kentucky and Texas; and below average elsewhere. February lows occurred in wells in Delaware, Virginia, Mississippi, Arkansas, and Louisiana. All-time lows occurred in wells in Virginia in the Upper Potomac aquifer near Toano and in the Middle Potomac aquifer at Franklin.

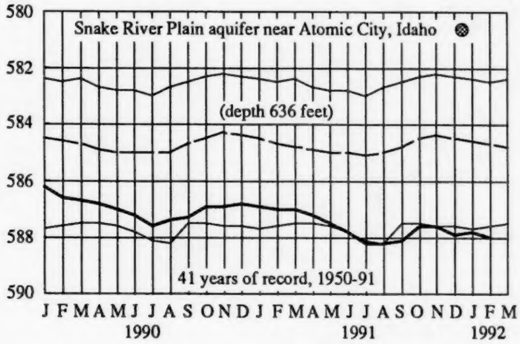
In the Southeast Coastal Plain region, water levels were mixed with respect to last month's levels throughout the Region. Levels were mixed with respect to long-term average in Georgia and generally below average in Florida.

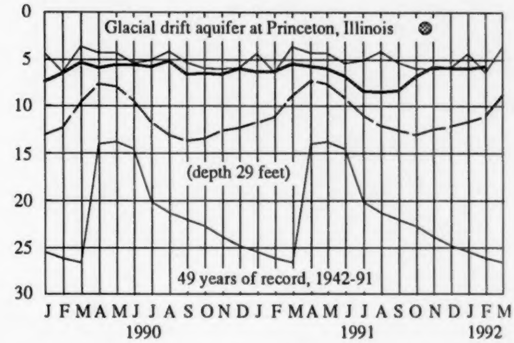
MONTHEND GROUND-WATER LEVELS IN SELECTED WELLS

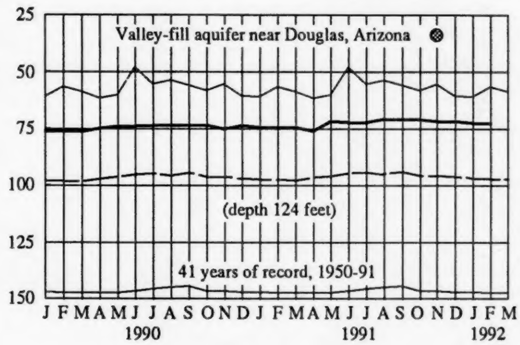
Area between light-weight solid lines indicates range between highest and lowest record for the month. Dashed line indicates average of monthly levels in previous years. Heavy line indicates level for current period.

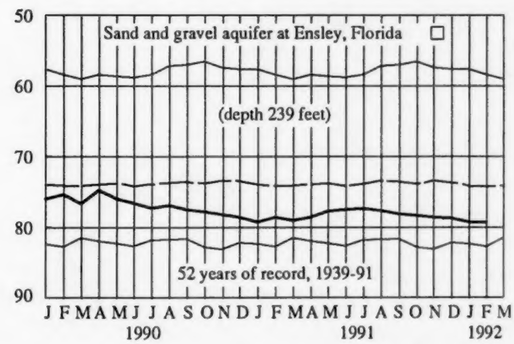
WATER LEVEL, FEET BELOW LAND-SURFACE DATUM

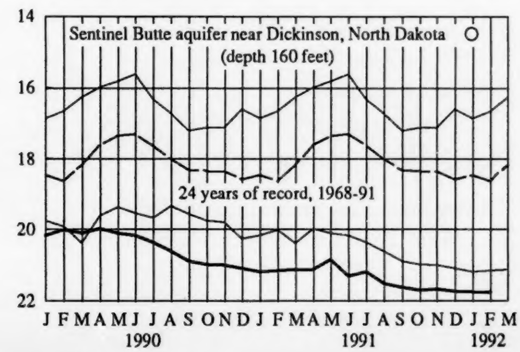


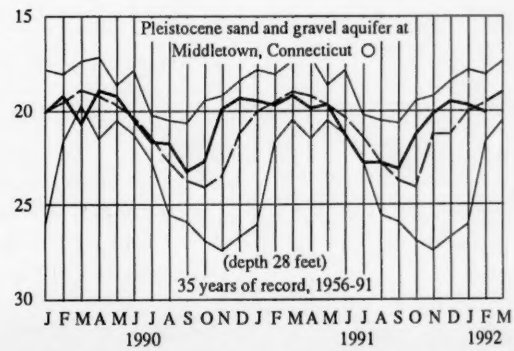


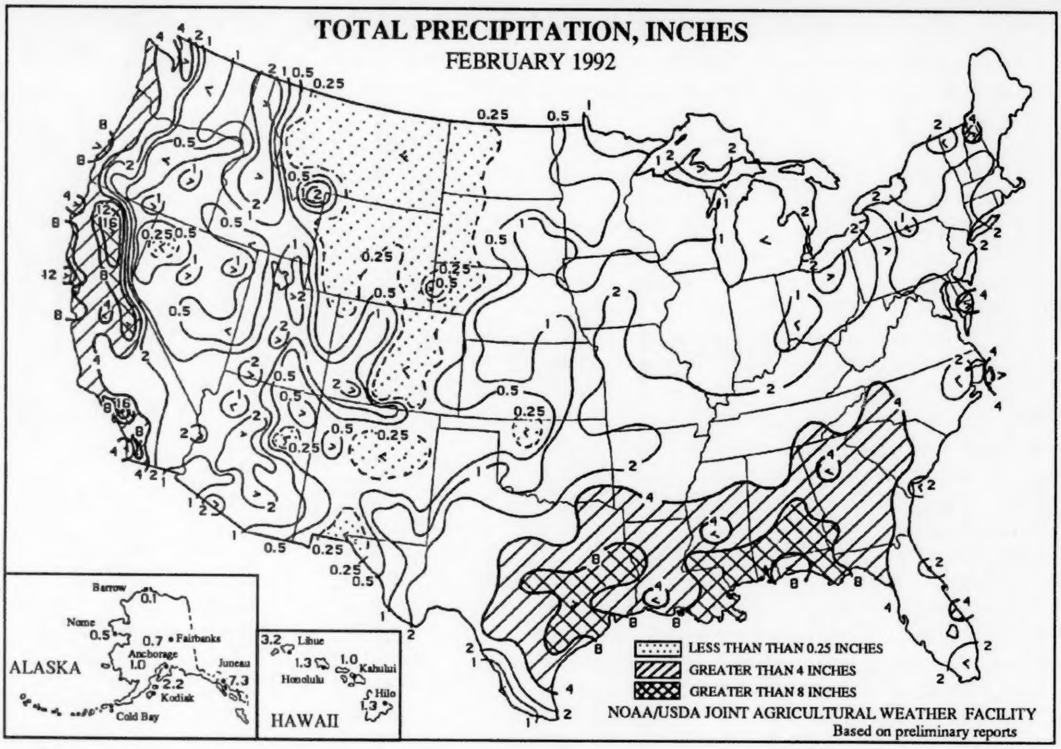


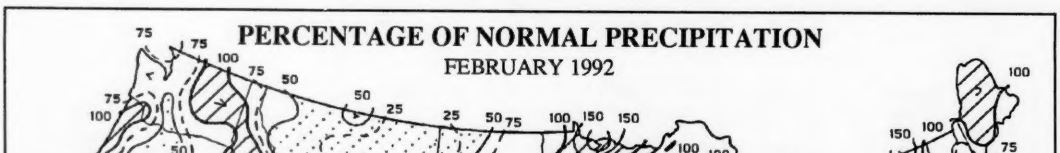












(From *Weekly Weather and Crop Bulletin* prepared and published by the NOAA/USDA Joint Agricultural Weather Facility)

UNITED STATES FEBRUARY PRECIPITATION IN HISTORICAL PERSPECTIVE

Preliminary data for February 1992 indicate that areally-averaged precipitation for the nation was above normal for February (first graph below, left), ranking February 1992 as the 33rd wettest (66th driest) February on record. The preliminary value for precipitation is estimated to be accurate to within 0.15 inches and the confidence interval is plotted as a '+'. About one-seventh (14.5%) of the country experienced much wetter than normal conditions and 11.6% was much drier than normal.

Historical precipitation is shown in a different way in the second graph on the left, below. The February precipitation for each climate division in the contiguous U.S. was first standardized using the gamma distribution over the 1951-80 period. These gamma-standardized values were then weighted by area and averaged to determine a national standardized precipitation value. Negative values are dry, positive are wetter than the mean. This index gives a more accurate indication of how precipitation across the country compares to the local normal climate. The areally-weighted mean standardized national precipitation ranked 1992 as the 39th driest (60th wettest) February on record.

The South region had their seventh wettest February on record while the West region had their 16th wettest February since records began in 1895. To the other extreme, the West North Central region recorded their sixth driest February. The Northeast, Central, and Northwest regions were also in the lower third of the historical distribution.

For the nation, the year thus far shows areally-averaged precipitation near normal. (First graph below, right.) When the local normal climate is taken into account, however, the year to date ranks as the 33rd driest such period on record (second graph below, right) thus putting it slightly below normal.

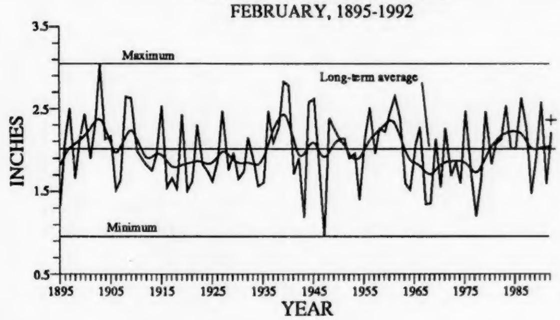
Long-term drought conditions on a national scale increased slightly during February. The percent area of the contiguous U.S. experiencing long-term drought (as defined by the Palmer Drought Index) is currently about ten percent. At the same time, the percent area experiencing long-term wet conditions changed very little and continues to hover around 17 percent.

Nearly seventeen percent of the nation suffered from below normal precipitation for the January-February period while 14.4% experienced much above normal precipitation. Two states (Delaware and Montana) had their driest January-February period on record while seven other states had their tenth driest or drier such period. On the other extreme, Texas had their wettest January-February record and Louisiana recorded their sixth wettest such period since records began in 1895.

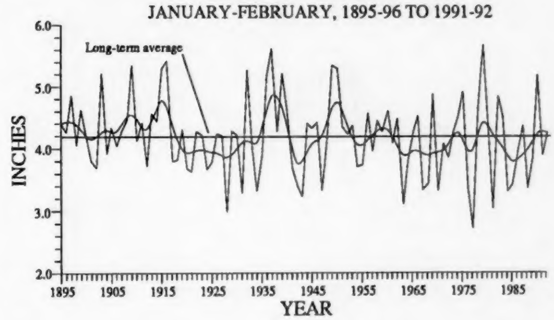
Eight River Basin areas were in the top third wettest of the historical distribution for the hydrologic year, now five months old. Topping the list is the Texas Gulf Coast Basin which had their wettest October-February period on record.

The Rio Grande Basin had their third wettest such period and the Upper Mississippi Basin had their eighth wettest such period on record. On the other hand, the driest was the Pacific Northwest Basin with the fifteenth driest hydrologic year to date followed closely by the Mid-Atlantic Basin which had their 21st driest such hydrologic period on record.

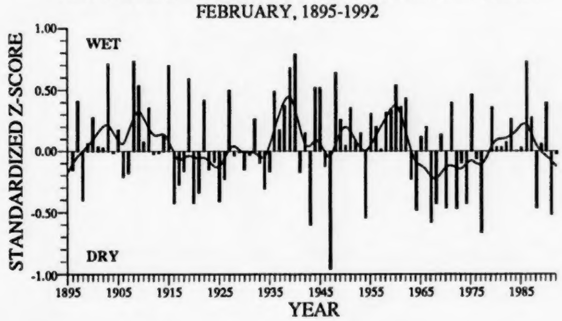
U.S. NATIONAL PRECIPITATION
FEBRUARY, 1895-1992



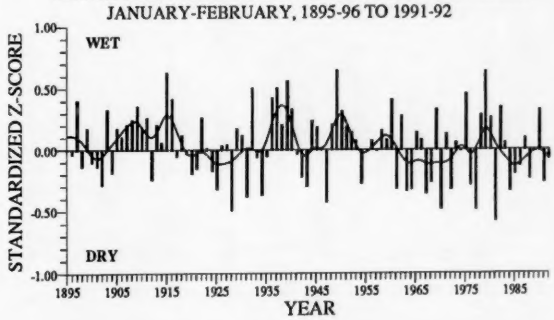
U.S. NATIONAL PRECIPITATION
JANUARY-FEBRUARY, 1895-96 TO 1991-92



U.S. NATIONAL WEIGHTED MEAN PRECIPITATION INDEX
FEBRUARY, 1895-1992

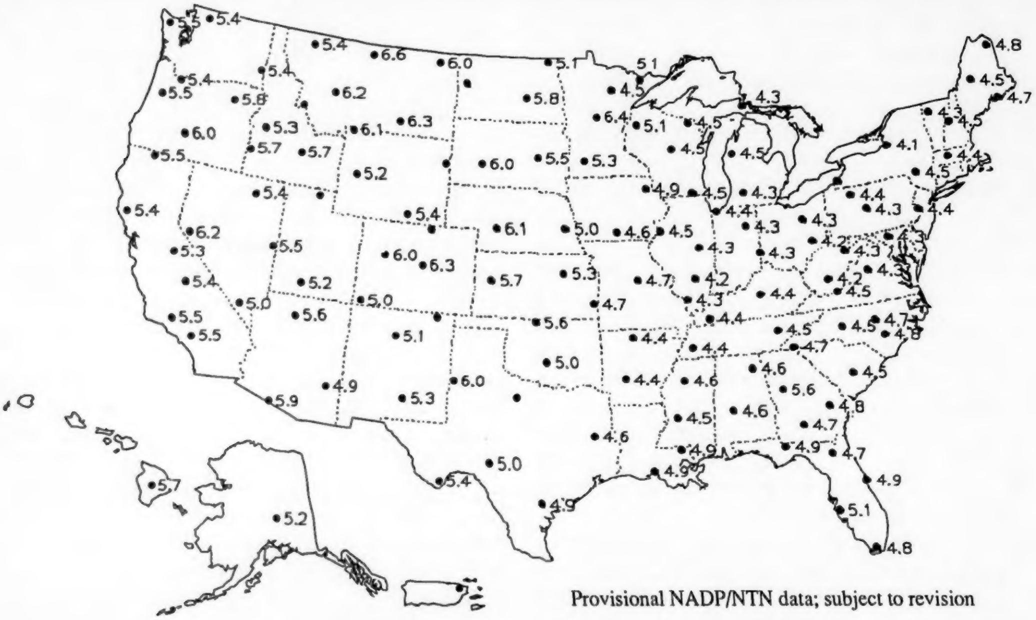


U.S. NATIONAL WEIGHTED MEAN PRECIPITATION INDEX
JANUARY-FEBRUARY, 1895-96 TO 1991-92



(From *Climate Variations Bulletin*, National Climatic Data Center, NOAA)

pH of Precipitation for January 27-February 23, 1992

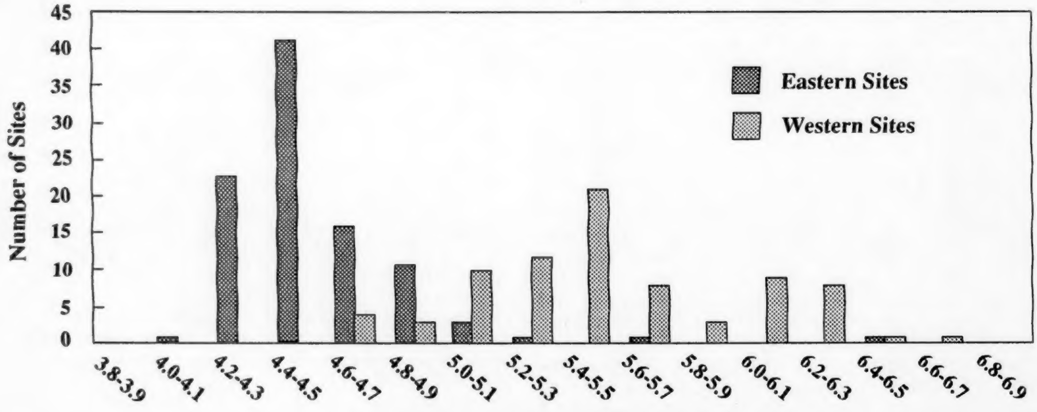


Provisional NADP/NTN data; subject to revision

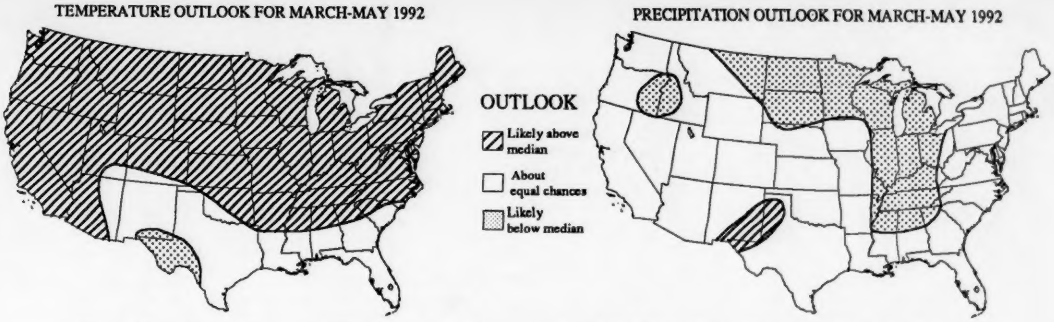
Current pH data shown on the map (• 4.9) are precipitation-weighted means calculated from preliminary laboratory results provided by the NADP/NTN Central Analytical Laboratory at the Illinois State Water Survey and are subject to change. The 128 points (•) shown on this map represent a subset of all sites chosen to provide relatively even geographic spacing. Absence of a pH value at a site indicates either that there was no precipitation or that data for the site did not meet preliminary screening criteria for this provisional report.

A list of the approximately 200 sites comprising the total Network and additional data for the sites are available from the NADP/NTN Coordination Office, Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO 80523.

Distribution of precipitation-weighted mean pH for all NADP/NTN sites having one or more weekly samples for January 27-February 23, 1992. The East/West dividing line is at the western borders of Minnesota, Iowa, Missouri, Arkansas, and Louisiana.



TEMPERATURE OUTLOOK FOR MARCH-MAY 1992 PRECIPITATION OUTLOOK FOR MARCH-MAY 1992



From *Monthly and Seasonal Weather Outlook* prepared and published by the National Weather Service

NATIONAL WATER CONDITIONS

FEBRUARY 1992

Based on reports from the Canadian and U.S. Field offices; completed April 2, 1992

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The National Water Conditions is published monthly. Subscriptions are free on application to the U.S. Geological Survey, 419 National Center, Reston, VA 22092.

EXPLANATION OF DATA (Revised December 1990)

Cover map shows generalized pattern of streamflow for the month based on provisional data from 186 index gaging stations—18 in Canada, 166 in the United States, and 2 in the Commonwealth of Puerto Rico. Alaska, Hawaii, and Puerto Rico inset maps show streamflow only at the index gaging stations that are located near the point shown by the arrows. Classifications on map are based on comparison of streamflow for the current month at each index station with the flow for the same month in the 30-year reference period, 1951-80. Shorter reference periods are used for one Canadian index station, two Kansas index stations, and the Puerto Rico index stations because of the limited records available.

The ***streamflow ranges map*** shows where streamflow has persisted in the above- or below-normal range from last month to this month and also where streamflow is in the above- or below-normal range this month after being in a different range last month. Three ***pie charts*** show: the percent of stations reporting discharges in each flow range for both the conterminous United States and southern Canada, and also the percent of area in each flow range for the conterminous United States and southern Canada. The ***combination bar/line graph*** shows the percent departure of the total mean from the total median flow (1951-80) and the cumulative departure from median (in cfs) for all reporting stations (excluding eight large river stations indicated by # in the ***Flow of large rivers*** table) in the conterminous United States and southern Canada.

The comparative data are obtained by ranking the 30 flows for each month of the reference period in order of decreasing magnitude—the highest flow is given a ranking of 1 and the lowest flow is given a ranking of 30. Quartiles (25-percent points) are computed by averaging the 7th and 8th highest flows (upper quartile), 15th and 16th highest flows (middle quartile and median), and the 23rd and 24th highest flows (lower quartile). The upper and lower quartiles set off the highest and lowest 25 percent of flows, respectively, for the reference period. The median (middle quartile) is the middle value by definition. For the reference period, 50 percent of the flows are greater than the median, 50 percent are less than the median, 50 percent are between the upper and lower quartiles (in the normal range), 25 percent are greater than the upper quartile (above normal), and 25 percent are less than the lower quartile (below normal). Flow for the current month is then classified as: in the ***above-normal range*** if it is greater than the upper quartile, in the ***normal range*** if it is between the upper and lower quartiles, and in the ***below-normal range*** if it is less than the lower quartile. Change in flow from the previous month to the current month is classified as ***seasonal*** if the change is in the same direction as the change in the median. If the change is in the opposite direction of the change in the median, the change is classified as ***contraseasonal*** (opposite to the seasonal change). For example: at a particular index station, the January median is greater than the December median; if flow for the current January increased from December (the previous month), the increase is seasonal; if flow for the current January decreased from December, the decrease is contraseasonal.

Flood frequency analyses define the relation of flood peak magnitude to probability of occurrence or recurrence interval. ***Probability of occurrence*** is the chance that a given flood magnitude will be exceeded in any one year. ***Recurrence interval*** is the reciprocal of probability of occurrence and is the average number of years between occurrences. For example, a flood having a probability of occurrence of 0.01 (1 percent) has a recurrence interval of 100 years. ***Recurrence intervals imply no regularity of occurrence***; a 100-year flood might be exceeded in consecutive years or it might not be exceeded in a 100-year period.

Statements about ***ground-water levels*** refer to conditions near the end of the month. The water level in each observation well is compared with average level for the end of the month determined from the entire period of record for that well. ***Changes in ground-water levels***, unless described otherwise, are from the end of the previous month to the end of the current month.

Dissolved solids and temperature data are given for five stream-sampling sites that are part of the National Stream Quality Accounting Network (NASQAN). ***Dissolved solids*** are minerals dissolved in water and usually consist predominately of silica and ions of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, sulfate, chloride, and nitrate. ***Dissolved-solids discharge*** represents the total daily amount of dissolved minerals carried by the stream. ***Dissolved-solids concentrations*** are generally higher during periods of low streamflow, but the highest dissolved-solids discharges occur during periods of high streamflow because the total quantities of water, and therefore total load of dissolved minerals, are so much greater than at times of low flow.

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